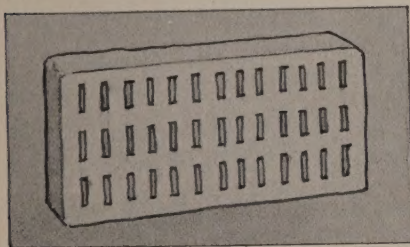


New Products

3. Masonry Materials

"SUPER HY-TEST" MASON'S CEMENT. In conjunction with Super Cement Co., a development and marketing of a cement which imparts qualities in masonry cement for brickwork such as are produced by Super Portland cement in concrete. Hy-Test Cement Co., Inc., 1616 Walnut Street, Philadelphia, Pa. 1

NEW INSULATING BRICK. A pulverized shale brick having 39 top-to-bottom openings for pocketing dead air. Stands crushing test of 110 tons; made in



smooth or texture face in range of colors. Cost low enough so that it can be used for backers as one would use commons. Old Virginia Brick Co., Salem, Va. 2

B. & W. "80 JUNIOR" FIREBRICK. Developed to meet conditions existing between the moderate service economically met by fireclay refractories and the severe conditions met by B. & W. "80" Firebrick—fields in which special bricks of the alumina-silica class are now used but which prove costly under conditions near their upper service limits. The Babcock & Wilcox Co., 85 Liberty Street, New York, N. Y. 3

EMULSIFIED CARBON BLACK. An integral pigment for dark colored concretes and mortars; produces any desired shade between white and intense black. Design is heightened. Discolorations eliminated. Drives and walks become non-glaring. The color is permanent, uniform, safe and economical. Binney and Smith Co., 41 E. 42d Street, makers of "Hiblak." Godfrey L. Cabot, Inc., 940 Old South Bldg., Boston, makers of "Charon." 4

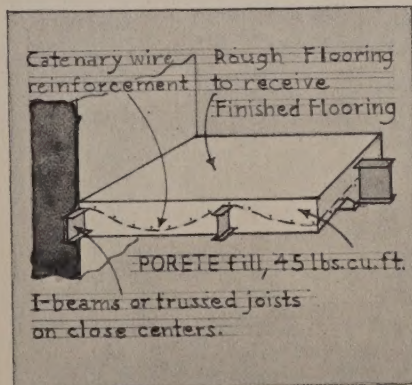
"STONEMASON'S BRIXMENT." A non-staining, waterproofed cement for setting limestone and other building stone. It has all the advantages of Brix-

Once again, as in September, 1932, we have sought to bring together the contributions recently made to the science of building. In this period when construction volume has fallen far below normal, the research and inventiveness of the industry has not flagged, as these pages witness. Here, then, are new tools put into the hands of the profession, for the creation of better architecture. The arrangement is in accordance with the filing system devised by the A. I. A.—EDITOR. 5

ment for masonry—extreme plasticity, freedom from efflorescence and fading, great strength and uniformity. It is mixed with sand and water only—no lime is needed. Approved by the Indiana Limestone Association. Louisville Cement Co., Louisville, Ky. 5

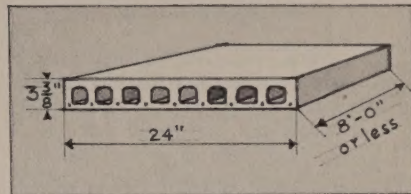
4. Concrete and Monolithic Construction

STEEL BEAM AND LIGHTWEIGHT PORETE FILL FLOOR SYSTEM. A lightweight cellular concrete of about 50 pounds per cubic foot is poured around a system of steel joists on close



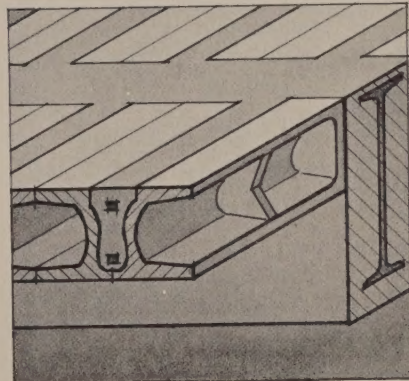
centres, resulting in a lightweight fire-proof floor with flat ceiling and excellent sound and heat insulation. Can be erected by any contractor under Porete Company supervision. Porete Mfg. Co., North Arlington, N. J. 6

PERFORETE SLABS. A lightweight floor and roof slab made of dense vibrated concrete with longitudinal hollow



spaces, reinforced with steel rods up to 8' lengths. Has been used extensively in Europe. Provides a smooth ceiling and good heat-insulation. Porete Mfg. Co., North Arlington, N. J. 7

PORETE LONG-SPAN FLOOR SYSTEM. Using a precast dense concrete hollow filler unit in long-span flat-ceiling floor and roof construction. Unit length,



6' (also 4' and 5'), reinforced to carry temporary floor loads before T-beam is poured. Spans 10' to 25'; floor loads, 40-125 pounds per square foot. Porete Mfg. Co., North Arlington, N. J. 8

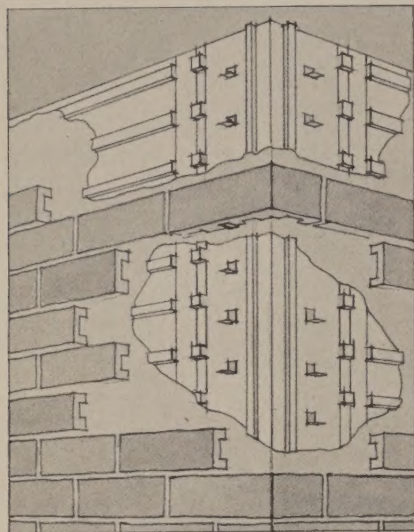
GYPSTEEL CEILING PLANK. A companion product to the floor and roof plank, designed to provide flat ceilings under, and to furnish full fire protection for, steel members. Also used beneath trusses in theatres, hangars, garages. 2" x 12" x 6', shiplapped sides and ends. Structural Gypsum Corp., 535 Fifth Avenue, New York, N. Y. 9

"STONEHARD RESURFACER." Floor repair material, mixed with sand and cement, laid cold, 1/2" thick. Chipping, roughing or acid-washing unnecessary. Handyman can bond it to concrete, wood, brick, wood block, asphalt, or composition floors. Ready for traffic in 36 hours. Will not dust. Resilient and quiet. Stonehard Co., 401 No. Broad Street, Philadelphia, Pa. 10

GYPSTEEL PARTITION PLANK. A factory-cast gypsum t. & g. unit, 2" x 15", in lengths up to 9'. For low-cost housing. Story-height units erected without mortar. Steel dowels bond sections. Choice of finishing treatments available, such as "Kanite," 1-coat plaster $\frac{1}{8}$ " thick, giving surface for paper or paint. Structural Gypsum Corp., 535 Fifth Avenue, New York, N. Y. 11

5. Brickwork

LOCK BRICK CONSTRUCTION. A kiln-burned brick veneer for old and new work. Total thickness, applied to wall, $1\frac{1}{4}$ "; weight per sq. ft., 6 lbs. Wall



covered with waterproof building paper; nail on the special steel field sheets and corner sheets; apply waterproof cement mortar; key on the lock brick. Tub-Hill, Inc., Pittsburgh, Pa. 12

8. Stone Work

MOUNT AIRY SAWED-BED ASHLAR. Cheaper to produce, transport, and set than rubble and rubble ashlar. May be used as a veneer. Rises are in accordance with specifications, lengths random up to 10'. Suitable for coursed or broken range work. Sold by the face foot. J. D. Sargent Granite Co., Mount Airy, N. C. 13

"OTTER CREEK" FLAGSTONE AND RUBBLE. A natural metamorphosed sandstone or quartzite formation, harder than marble. Quarried in flat, smooth-face strata, varying from $\frac{1}{2}$ " to 20" in thickness. Colors: pastel shades of gray, buff, pink, and lavender. For interior floors, wainscot, steps, terrace, and garden. Cumberland Stone Co., Inc., Crab Orchard, Tenn. 14

"ROSTONE." A new synthetic stone made in a very wide range of permanent colors and color effects. It contains no

cement, and its structural strength and other practical qualities are similar to natural stone. Made in pre-molded forms for exterior and interior walls, flooring, roofing, and decorative uses. Rostone, Inc., 308 Main Street, Lafayette, Ind. 15

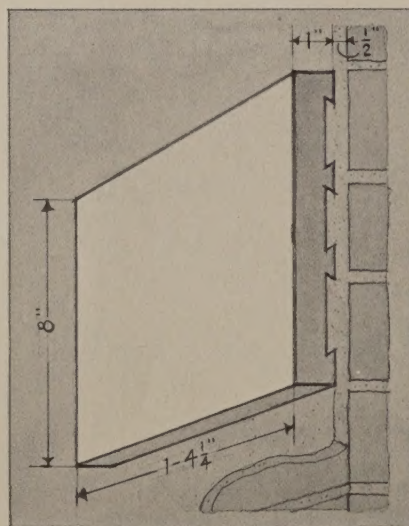
9. Architectural Terra-Cotta

NEW SURFACE TEXTURES IN TERRA-COTTA. Many new surface textures have been developed in Atlantic Terra Cotta, producing, for instance, in quantity and economically, pieces with all attributes of hand-made un moulded work. Atlantic Terra Cotta Co., 19 W. 44th Street, New York, N. Y. 16

PICTORIAL TERRA-COTTA IN THE FLAT. A process whereby pictorial designs can be reproduced on wall areas without modelled relief to separate colors. Particularly applicable for designs in a poster technique without attempt to blend colors. Atlantic Terra Cotta Co., 19 W. 44th Street, New York, N. Y. 17

ATLANTIC WALL UNITS. Now can be made in sizes ranging up to 18" x 36" and other proportional sizes, in any thickness, for a veneer or structural block. Ground all four sides, absolutely flat surface. An almost unlimited choice of colors. Atlantic Terra Cotta Co., 19 W. 44th Street, New York, N. Y. 18

TERRA-COTTA ASHLAR VENEER. This is a 1" veneer for modernizing old brick façades. Produced in all glazed or



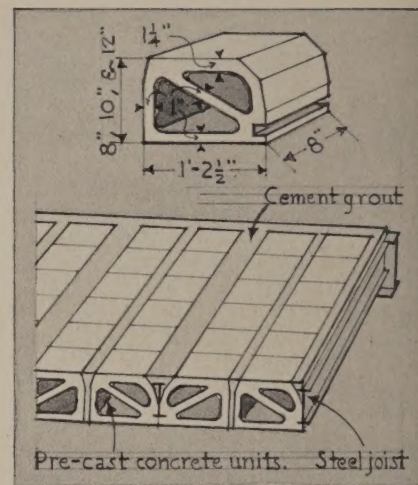
stone colors, with a surface that is easily cleaned with soap and water. Economically set by experienced bricklayers. Federal Seaboard Terra Cotta Corp., 10 East 40th Street, New York, N. Y. 19

MACOTTA. A new lightweight masonry unit surfaced with porcelain-enamelled iron of non-fading colors. Can be formed to design in units up to

20 square surface feet and from 1" to any desired thickness. Its color treatment, beauty, and ease of cleaning make it an ideal material for remodelling purposes. Fredenburg & Lounsbury, 101 Park Avenue, New York, N. Y. 20

10. Block Construction

STEEL JOIST AND ARCH BLOCK FLOOR SYSTEM. Two exceedingly light precast cinder concrete arch blocks are set between lightweight steel joists on 30" centres; a cement grout is poured



between the blocks, resulting in a light floor with flat ceiling. Columbia University tests show this floor to resist a four-hour fire. Porete Mfg. Co., North Arlington, N. J. 21

12. Roofing, Sheet Metal and Skylights

"GENASCO RESATURATOR." To resaturate roofing felts which have become dry and lifeless though not disintegrated. To be used only on portions where felt has become exposed. Not a final protective coating. The Barber Asphalt Co., 1600 Arch Street, Philadelphia, Pa. 22

"GENASCO RESURFACER." A combination of soft and relatively non-hardening asphalt bodied up with asbestos fibres. Provides a tough yet plastic film $\frac{3}{4}$ " thick, flowing into cracks and adjusting itself to stresses without breaking open even in cold weather. The Barber Asphalt Co., 1600 Arch Street, Philadelphia, Pa. 23

"SOLKA." A cellulose base to replace rag felt for asphalt shingles and roofings. Absorbs 30-60 per cent more asphalt. Stronger, tougher, more pliable. The Brown Co., Portland, Me. 24

ANACONDA "ELECTRO-SHEET" COPPER. The perfection of a method for producing wide, thin copper sheets by electro-deposition has led to a new

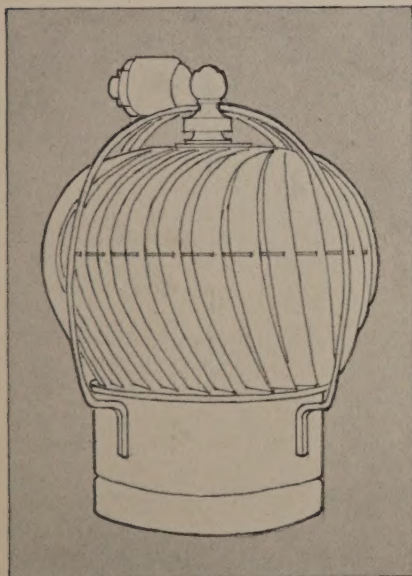
development in built-up roofing—alternate layers of “Electro-Sheet” Copper and asphalt. Such a roof is easily applied and low in cost. Because the non-porous copper protects the asphalt indefinitely, exceptional durability is provided. Anaconda Copper Mining Co., 25 Broadway, New York, N. Y. 25

BIRD “PROSLATE” ROOFING. A roll 37' long contains 111 sq. ft. Has a strip 3" wide along one edge from which the slate surfacing is omitted. This is nailed down, overlapped by next row, and the joint cemented with a special quick-setting cement. Bird & Son, East Walpole, Mass. 26

BIRD “CUSTOM-BUILT SHINGLES.” A plaster shingle, rather than an asphalt shingle. Give much the appearance of blended slate. Ragged edge gets away from the monotony of regularity objectionable in asphalt shingles. Class B. Underwriters label. Bird & Son, East Walpole, Mass. 27

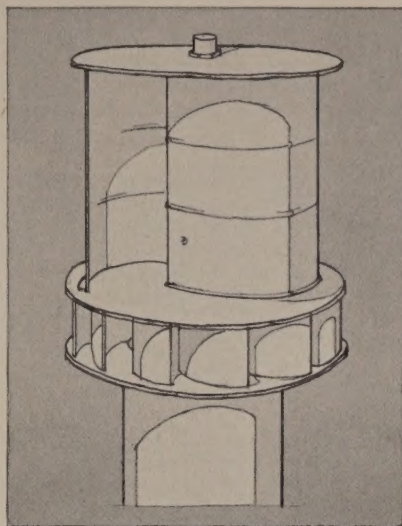
EDWARDS STANDING CAP SEAM. For direct application of corrugated metal to steel purlins. Useful in construction of steel buildings, such as warehouses, where metal is held by cleats. Can be applied by one man as against the two required for laying ordinary corrugated. The Edwards Mfg. Co., Eggleston Avenue and Fourth Street, Cincinnati, Ohio. 28

ALLEN ELECTRO-WIND TURBINE VENTILATOR. An exhauster designed on the free-wheeling principle; wind-driven, it handles the ordinary air-



removal problem, but for the peak load the touch of a switch (or thermostatic control) increases the exhaust from 100-200 per cent. The Allen Corporation, 14th Avenue at Howard Street, Detroit, Mich. 29

“S” ROTOR VENTILATOR. A combination of the Savonius S Rotor and a special centrifugal fan. Operates constantly—silently on grease-packed bearings—and is unaffected by heat, cold,



rain, sleet, snow, salt air, smoke, gases. Wind-driven in any air speed down to two miles per hour. U. S. Ventilator and Power Corp., 184 Summer Street, Boston, Mass. 30

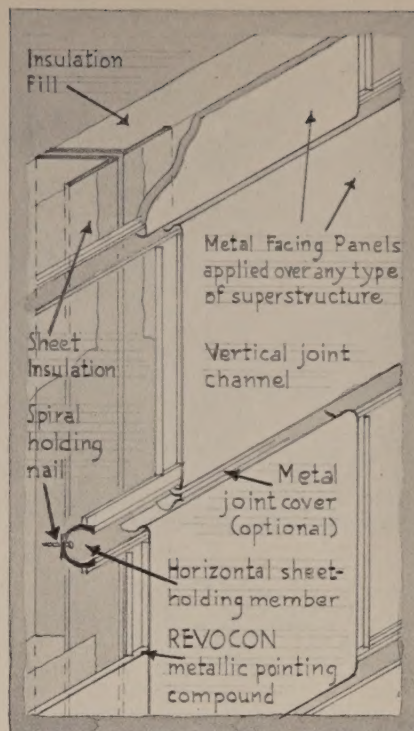
SWARTWOUT IMPROVED ROTARY BALL-BEARING VENTILATORS. Revolve on special bronze bearings; wind-driven; of marked sensitiveness. Louver dampers easily controlled from inside of building. The Swartwout Co., 18511 Euclid Avenue, Cleveland, Ohio. 31

MODERNISTIC STEEL CEILING. Adapting the stamped ceiling to the progress of interior and exterior decoration and architecture. Lends itself to schemes in three or four colors. Furnished with re-pressed beads and die-cut nail holes. The Edwards Mfg. Co., Eggleston Avenue and Fourth Street, Cincinnati, Ohio. 32

13. Structural Steel and Iron

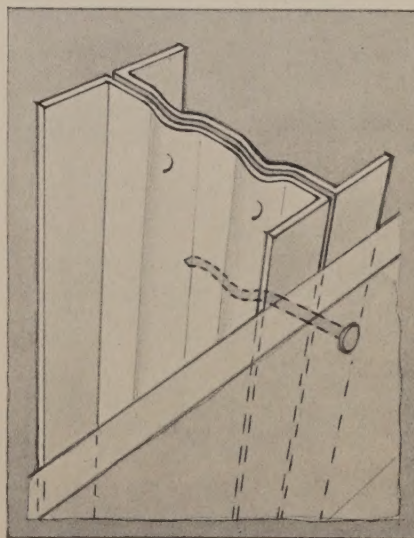
“ROSTONE-AND-STEEL” SYSTEM OF CONSTRUCTION. A new method of combining a light steel frame of pre-fabricated members with standardized exterior wall slabs of “Rostone,” the new colored synthetic stone. First shown at the Chicago Fair, it offers fireproof, earthquake-proof and termite-proof construction at very low cost. Rostone, Inc., 308 Main Street, Lafayette, Ind. 33

REVOCON SYSTEM. Utilizes strong aluminum-alloy extruded shapes, applied directly to skeleton-steel superstructure on outside building walls, on which preformed metal sheets are sprung and hooked. A metallic pointing com-



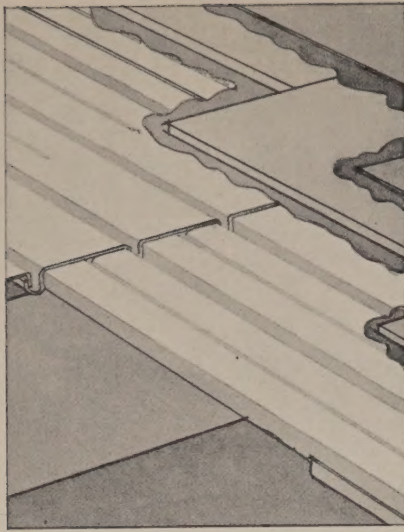
pound provides a weather-proof joint. Insulation can be attached to rear. Glass can be fitted snugly. Aluminum Co. of America, Pittsburgh, Pa. 34

STRAN-STEEL FRAMING. Comprises light-gauge rolled steel members and attachments. Substituted for wood framing, requires no changes in architec-



tural design. Erected by carpenters. Permits nailing collateral material directly to steel. Fire-safe, will not warp, termite-proof, salvageable. Stran-Steel Corp., Detroit, Mich. 35

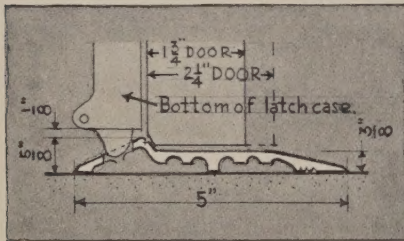
U. S. G. STEEL ROOF DECK. Lightweight; easily erected; for flat, pitched or curved surfaces. Interlocking, integrally reinforced 20-gauge copper-alloy



steel, 18" wide, also in 6" and 12" widths. Covered merely by insulation and waterproofing. Sold erected in place. United States Gypsum Co., Chicago, Ill. 36

14. Miscellaneous Steel and Iron

VON DUPRIN WIND- AND WATER-RESISTING THRESHOLD. Useful and fuel-saving on panic-bolt equipped



doors and on others where independent action of each door is necessary. Vonnegut Hardware Co., Indianapolis, Ind. 37

MODERNISTIC DAYLIGHT SERVICE STATIONS, SERIES 33-E. Of steel and glass, shop-fabricated. Available in nine series, from smallest station up. Easy to decorate by following trademark color scheme. The Edwards Mfg. Co., Eggleston Avenue and Fourth Street, Cincinnati, Ohio. 38

15. Ornamental Metal Work and Physical Properties of Metals

ALUMINUM INLAY IN MICARTA. A wide range of colors has been developed for the aluminized inlay used in decorating Micarta panels. Any decorative design can be incorporated at slight cost, and this new phenol-resin material lends itself well to the embellishment of bathroom, kitchen walls, store fronts,

and related uses. Aluminum Co. of America, Pittsburgh, Pa. 39

NEW ALUMINUM WINDOW ALLOY. A new alloy has been developed for window frames and sash, having a high corrosion resistance and higher tensile strength. It is more easily finished and machined. Can be obtained in all forms with the exception of castings. Aluminum Co. of America, Pittsburgh, Pa. 40

NEW PATTERN METALS. To offer a pleasing decorative variation from the usual chrome metals, there have been perfected four striking surface patterns: diamond, square, horizontal, and diagonal. Available in bright or satin finish, and in any gauge. Readily workable. American Nickeloid Co., Peru, Ill. 41

PROCESS FOR DECORATING STAINLESS STEEL. Polished 18-8 stainless sheets are glued to plywood and then etched by a process permitting three depths of cutting, and three distinct shadings. United States Plywood Co., Inc., New York, N. Y. 42

ROBERTSON BONDED METAL. Sheet steel to which fibrous layers (felt, cellulose paper, etc.) are attached with metal adhesives, producing close union. Bond is unaffected by moisture, temperature, or forming operations. Adaptable to wide variety of uses. H. H. Robertson Co., Grant Bldg., Pittsburgh, Pa. 43

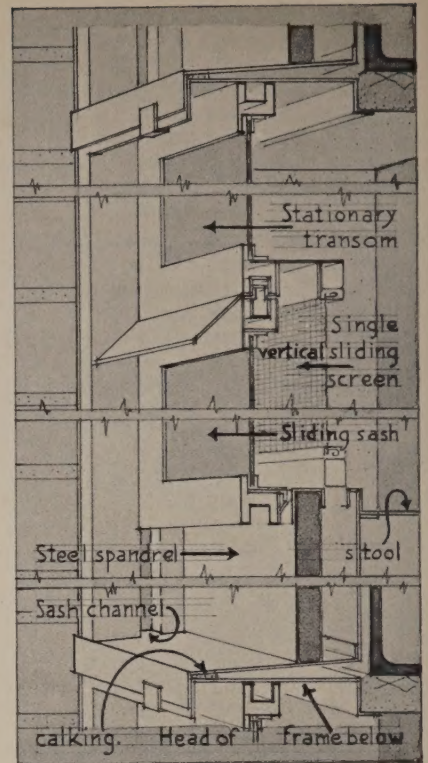
CLEANERS FOR ARCHITECTURAL ALUMINUM. A complete line of cleaners and protective coatings for architectural aluminum—cleaners, protective waxes, and refinishing compounds for every type of aluminum finish. The Skybryte Co., 1919 E. 19th Street, Cleveland, Ohio. 44

16. Fire-Resisting Doors, Windows and Trim

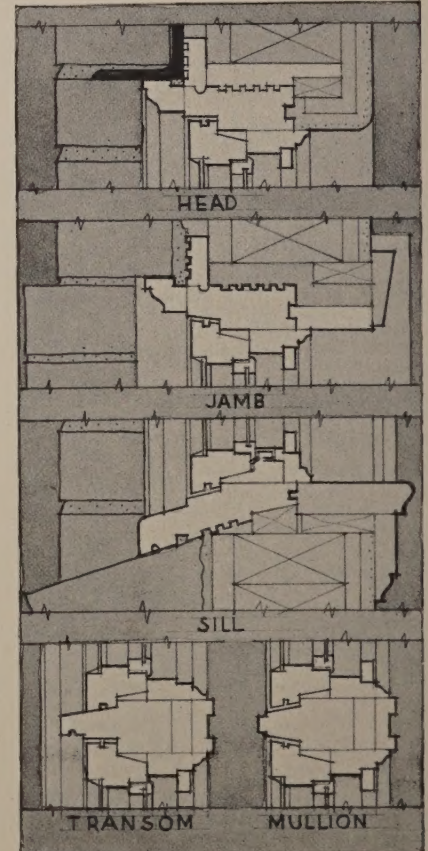
ANDERSEN CASEMENT WINDOW. Combines the weathertight advantages of wood construction with the modern narrow-line beauty of metal. Tests show 16.2 per cent less air leakage than average weather-stripped double-hung window. Comes complete, ready to install; frame primed with aluminum paint; muntins of aluminum or wood; screen-fitted; removable double glazing. (Illustration at right.) Andersen Frame Corp., Bayport, Minn. 45

17. Special Doors and Windows

LUNKEN SINGLE-HUNG SPANDREL WINDOW WITH SCREEN AND SCREEN STORAGE. A metal window adaptable to modern wall-bearing construction, with screens that slide

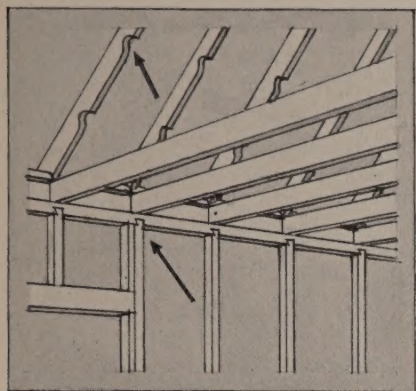


down back of spandrel, sash that slide down over spandrel. Sash operated without opening screen. Window washing done from inside the room. Corry-Jamestown Mfg. Corp., Corry, Pa. 46



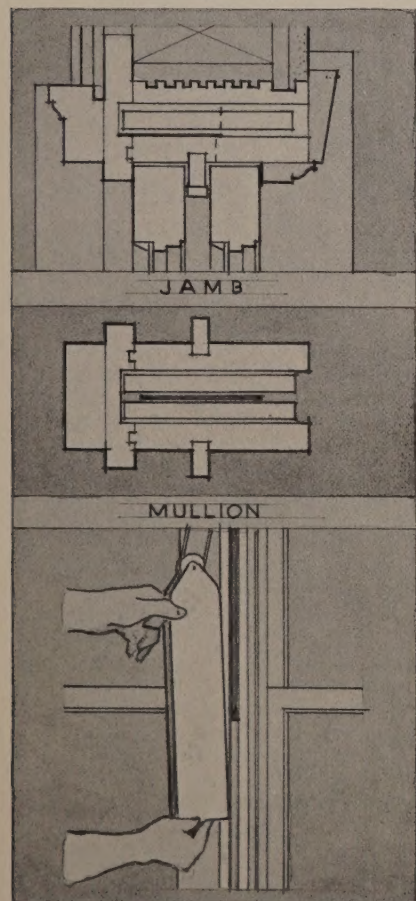
19. Carpentry

ENTERLOCK FABRICATED BUILDING LUMBER, a system of providing a fixed-quality, kiln-dried



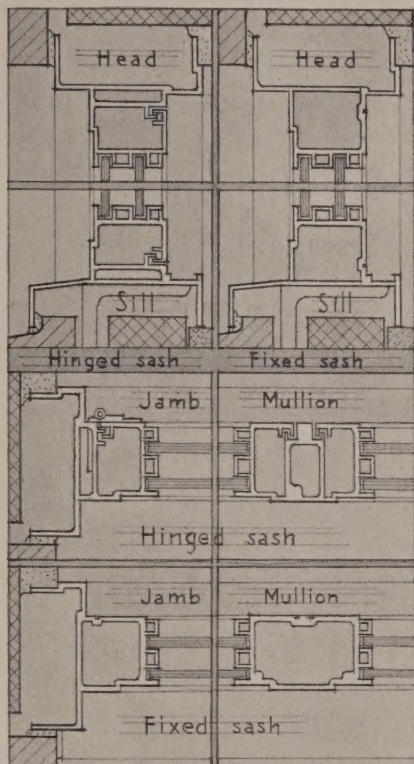
product, constant as to size and shape, 75 per cent of which is pre-cut ready to place. Does not limit architectural expression. Framing members go together with Enterlock (patented) wedge-shaped dovetailed joint. Long-Bell Lumber Sales Corp., Kansas City, Mo. 47

ANDERSEN "NARROLINE" DOUBLE-HUNG WINDOW. Combines modern narrow mullions and narrow trim with the time-tested principle of counterbalancing. Single flat weight



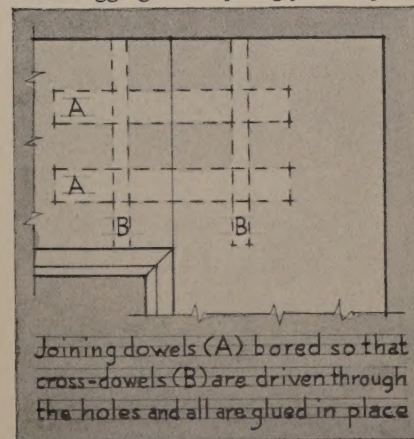
with pulley replaces two ordinary weights. Bronze weatherstripping is standard equipment. A special "Heavy Duty Narroline" is also made for large windows. Andersen Frame Corp., Bayport, Minn. 48

KAWNEER "SEALAIR" CASEMENT WINDOW. Adapted for use in buildings where air-conditioning systems are installed. These windows can be built as continuous units from floor to



floor, and glazed with structural glass at floor-level spandrels. Any combination of single and double glazing, with operating or fixed sash. The Kawneer Co., Niles, Mich. 49

HARBORD SAG-NOTT DOOR. Locked at each corner joint with a cotter-keyed joint that cannot give. Prevents sagging from sprung joints. Joint



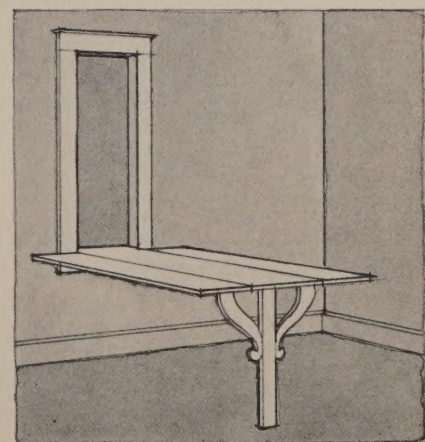
is built in under pressure, the pins locked through the dowels. Panels of Harbord plywood. Harbord Plywood Corp., Hoquiam, Wash. 50

FORMICA DOORS. Flush-type, complete except for hardware. Doors are dark red and black, the exterior veneer being a grade of Formica known as refinishing stock. Can be refinished by sanding lightly if marred or injured. The Formica Insulation Co., Cincinnati, Ohio. 51

"UNIPAK" WINDOWS AND FRAMES. Consist of two separate sections: outer frame for nailing to studding, and a factory-assembled inner frame with sash hung, weatherstripped and fitted with spring balances, all waterproofed against building moisture. Farley & Loebacher Mfg. Co., Dubuque, Iowa. 52

"ARMORPLY." Thin electrolytic copper sheets produced by American Brass Co. mounted on plywood. The combination of one, two or three-ounce copper with plywood produces a panel of minimum weight, great stiffness and durability. United States Plywood Co., Inc., New York, N. Y. 53

FIFIELD "IN-A-WALL" TABLE. Built in between studding. Lowers from wall space somewhat like ironing-



board, but with leg support and hinged brackets for side-extension folding leaves. Furnished complete with cabinet. In-a-Wall of Painesville, Ohio. 54

FIFIELD "IN-A-WALL" BED. Electrically operated to lower from ceiling panel. Does not fold, and may be put away made up. Full-size bed, with bottom panelled to match ceiling. In-a-Wall of Painesville, Ohio. 55

"CHARTER OAK" PRE-FINISHED FLOORING. Completely finished at the factory with penetrating varnish and wax. A durable and long-wearing finish. Maintained at minimum of expense. Made in 1½" width only, and in a single grade that combines both Clear and

Select. Lengths unusually good. The Cromar Co., Williamsport, Pa. 56

"BLOXONEND" FLOORING, 1 $\frac{3}{4}$ ". Yellow pine blocks dovetailed endwise on to long baseboards, for use in gymnasiums, shops, corridors, store aisles, etc., where maximum strength is not needed. Carter Bloxonend Flooring Co., 902 Walnut Street, Kansas City, Mo. 57

RU-BER-OID "NEWMARBLE." Made from asbestos and cement in panel form, with a lustrous finish that simulates marble. Eight marble colors—an integral part of each panel. Approximate weight 2 lbs. per sq. ft. Panel size, 32" x 48". Thickness, $\frac{3}{8}$ ". Cap moulding and base made in all "Newmarble" finishes. Ruberoid Co. 58

BUILDING-PAPER TO RESIST DRY ROT. A recent development in Sisalkraft, the sisal-reinforced building-paper, is a treatment of the sheet to make it resistant to dry rot, mildew, and other fungi. Every one familiar with the damage done by dry rot in concealed portions of a building will appreciate the advantage of eliminating this possibility of damage to a material whose service depends on its remaining intact. The Sisalkraft Co., 205 W. Wacker Drive, Chicago, Ill. 59

COPPER-ARMORED SISALKRAFT. A new combination of electro-deposit copper and the tough sisal reinforced building paper, Sisalkraft, offers the advantages of flashing in an economical and easily workable form. This new product is made with copper of either one or two oz. (per sq. ft.) weight. For applications around door and window openings, for spandrel waterproofing and for basement waterproofing. The Sisalkraft Co., 205 W. Wacker Drive, Chicago, Ill. 60

"TUFFLEX." A combination of patented creped paper cemented to a heavy plain sheet with asphalt. A flexible building paper, sufficiently stiff for easy handling. Does not become brittle in cold weather, nor limp on hot days. Rough and smooth waterproof surfaces adapt it to conditioning concrete. Wood Conversion Co., Cloquet, Minn. 61

20. Furring and Lathing

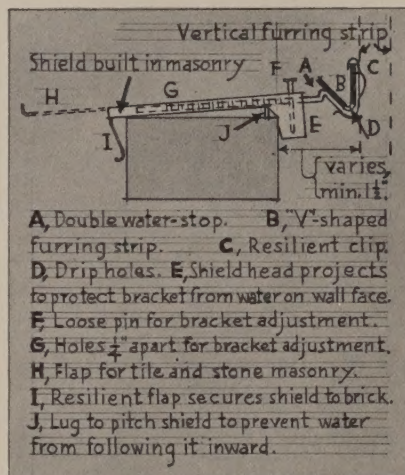
JUNIOR LATH. A small diamond mesh lath made in standard weights and types of steel. Mesh is about $\frac{1}{3}$ less than usual diamond mesh lath. More keys to the sheet, saving plaster and labor. When corrugated it forms a self-furring base. United States Gypsum Co., 300 W. Adams Street, Chicago, Ill. 62

"LATHTEX." A painted and baked diamond lath, "Meshtex," attached to Prime Kraft Board as backing. Size of

sheets, 27" x 96". The Kraft Board has proper absorption for correct plaster bond and wiring. Weights, 3, 3.3, 3.8, and 4.2 lbs. per sq. yd. For stucco, galv. lath with waterproof backing is furnished; weights, 3.4 and 4.3 lbs. per sq. yd. Penn Metal Co., 60 E. 42d Street, New York, N. Y. 63

SHEETROCK ARMORED JOINT. A system of strengthening and concealing joints, consisting of a perforated strip of metal alloy and a special cement. Cement is buttered over joint (and nailholes), strip laid on, and broad knife drawn down, forcing cement up through holes to embed the metal. United States Gypsum Co., 300 W. Adams Street, Chicago, Ill. 64

SIMP-L-ON SYSTEM OF WALL FURRING. An exterior wall furring made of galvanized copper-bearing steel which provides a minimum air



space of 2", but is adjustable for any depth required. Metal sleeve built in masonry, adjustable bracket arm and V-shaped horizontal furring strips clipped to arm. Simphon Products Corp., 551 Fifth Avenue, New York, N. Y. 65

21. Plastering

"STONE VENEER." Quartz bonded with waterproof gums to a 5-ply rope-stock paper, then baked. Durable, waterproof, washable. Applied over plaster or merely over insulating board. In two sizes: 7 $\frac{1}{2}$ " x 16" and 3 $\frac{3}{4}$ " x 16"; also in rolls 24" wide. In 3 Indiana limestone shades. Minnesota Mining & Mfg. Co., St. Paul, Minn. 66

22. Marble, Slate, Soapstone, Structural Glass, Terrazzo

GLASS BLOCK. Hollow, non-load-bearing material for exterior or interior use. Units, 4 $\frac{7}{8}$ " x 8" x 3 $\frac{7}{8}$ ". Laid up in mortar, requiring no new technique or special skill. Clear or colors. Used in

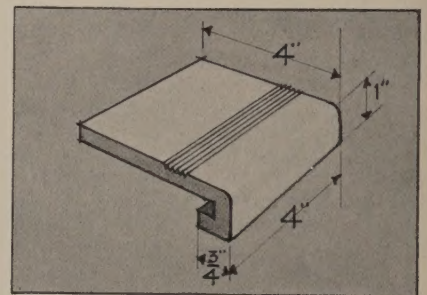
Owens-Illinois Building, Chicago Fair. Owens-Illinois Glass Co., Toledo, Ohio. 67

23. Floor and Wall Tile and Accessories

HOOD'S ALLUVIAL CLAY TILES. Made by hand in any Old Country authentic patterns. Soft and restful in color and texture. Some mixtures when waxed will take on an antique heather-brown appearance. A Bourbon blend of several deposits of superior washed-in clays, opposite in effects to metallic shales. They will last more than a lifetime. B. Mifflin Hood Co., Daisy, Hamilton County, Tenn. 68

INDIVIDUAL TILE DESIGN. Through medium of colored ceramic pencils, special tile and group designs may be created from own drawings. Fireplace facings, murals, bar decorations, etc. Artist draws directly on the tile before it is fired. Arnold & North, Inc., 203 E. 43d Street, New York, N. Y. 69

SPARTA "SAFETY-TRED" FLOOR TILE. In these vitreous ceramic mosaic tile for walls and floors, a new shape is the stair nosing, to complete the floor

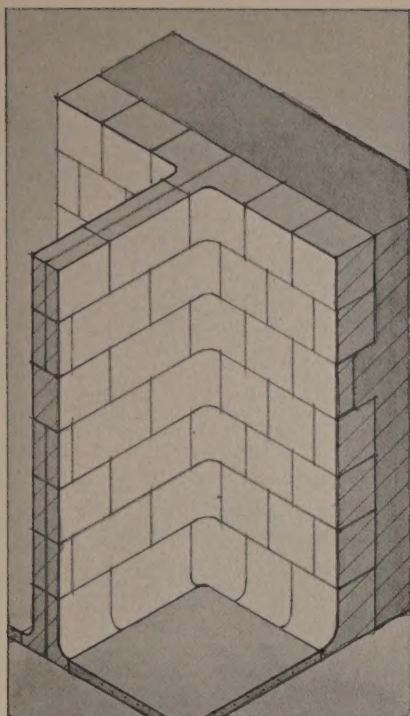


tile line. Nosing itself almost square, so that end return fits well into wall designs. Non-slip ribs project $\frac{3}{4}$ " above face. The Sparta Ceramic Co., 110 E. 42d Street, New York, N. Y. 70

"HERMOSA" TILE. A porcelain-like tile in white and colored glazes, "Bright" and "Matt" surfaces. In all standard sizes, including trim. Production formula improved so that guarantee against crazing is now extended to 3 yrs. For all wall surfaces where a perfectly sanitary non-crazing tile is required. American Encaustic Tiling Co., Ltd., 16 E. 41st Street, New York, N. Y. 71

NON-ABSORBENT TERRA-COTTA TILE. Developed for use in subway, traffic tunnels, exterior swimming-pools, where moisture-resisting clay body and glazed surface are necessary. An installation is the new Vehicular Traffic Tunnel now being constructed in Boston. Atlantic Terra Cotta Co., 19 W. 44th Street, New York, N. Y. 72

TUBRIC FACE TILE. For interior wall-finishing units. Load-bearing, with



either gloss or eggshell ceramic surface. For face size of $8'' \times 4\frac{3}{4}''$ there are three thicknesses: $3\frac{7}{8}''$ for load-bearing, $3''$ for wainscot, $1\frac{7}{8}''$ for light veneering. Machine-ground to accurate size and angles. Colors: white, black, twenty-five pastel shades; gloss, eggshell, or textured. Usual line of shapes. American Enameled Brick Corp., Graybar Bldg., New York, N. Y. 73

ALUNDUM RUBBER BONDED SAFETY TREAD. New type, suitable for new construction or maintenance work. Highly and permanently non-slip, even at nosing. Flat, level surface, with nothing to cause tripping. Non-slip when wet; unaffected by weather. Norton Co., Worcester, Mass. 74

STEDMAN REINFORCED RUBBER TILE. Now available in $\frac{1}{8}''$ thickness. Except for gauge, it has exactly the same characteristics as their other thicknesses, and is installed over concrete or wood floors with the same guarantee. Stedman Rubber Flooring Co., South Braintree, Mass. 75

INLAID MICARTA. Micarta inlaid with richly colored anodized aluminum is especially adaptable to wall panelling and murals. Any design may be cut to shape with suitable dyed inlays and moulded in the gleaming surface of the micarta. The finished panel is noted for its richness and durability. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 76

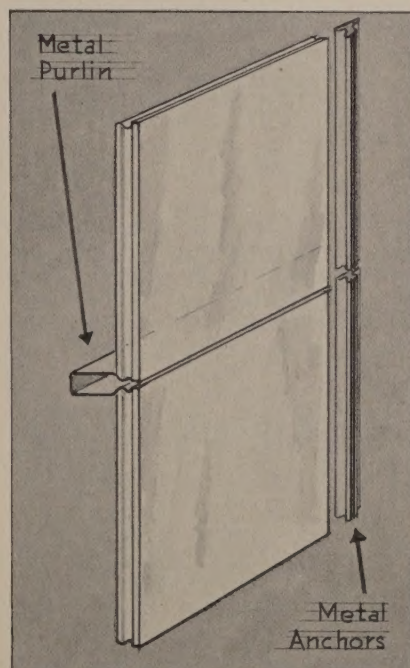
RUBER-OID "NEWTILE." Base is a strong, rigid sheet of asbestos-cement, finished with a hard, highly polished surface scored at $4''$ intervals,

closely resembling ceramic tile. Obtainable in white, red, black, and three pastel shades. Sheets, $32'' \times 48''$; $\frac{3}{16}''$ thick. Base and cap moulding $4''$ and $2''$ respectively, in $48''$ lengths, $\frac{3}{8}''$ thick. Ruberoid Co., 95 Madison Ave., New York, N. Y. 77

"NU-WOOD" BEVEL-LAP TILE. Wall and ceiling covering, combining sound absorption, heat insulation and permanent decoration. In two textures—rough mat and smooth surface; and in uniform or variegated colors; $\frac{1}{2}''$ and $1''$ thickness in many sizes. Wood Conversion Co., Cloquet, Minn. 78

TYPE A ACOUSTI-CELOTEX. Cane-fibre tile for noise quieting and acoustical correction. Thickness, $\frac{1}{2}''$, in regular sizes of $6'' \times 12''$, $12'' \times 12''$, and $12'' \times 24''$. Lower in price than other three types, and especially adapted for large areas of moderately efficient absorption material—school and hospital corridors, classrooms, cafeterias, etc. The Celotex Co., 919 No. Michigan Avenue, Chicago, Ill. 79

SEALED JOINT GLASS WALLS. Component parts are vertical steel stud-joints, horizontal metal purlins, glass wall units, metal anchors, waterproof mastic. May be used for new walls or facing old



ones; applicable to both exterior and interior construction. Glass units transparent or translucent, clear or colored, smooth or textured. Sealed Joint Products Co., Inc., 60 E. 42d Street, New York, N. Y. 80

24. Plastic Flooring

"EMULMASTIC." A new native lake emulsified asphalt which when mixed with Portland cement and aggregate

forms a mortar for patching or resurfacing factory floors, trucking lanes, stair treads, etc. Applied cold; ordinary mason; resurfacing over week-end. Black; can be painted. The Barber Asphalt Co., 1600 Arch Street, Philadelphia, Pa. 81

25. Paint, Painting and Finishing

SYNTHETIC RESIN FOR ANTI-CORROSIVE COATINGS. Bakelite XR-1329, a synthetic resin, 100 per cent phenolic; of special value in the production of oleo-resin varnishes; employed directly or as the vehicle of highly corrosion-resistant primers and paints. These varnishes are exceptionally moisture-proof and alkali-resistant. Bakelite Corp., River Road, Bound Brook, N. J. 82

SYNTHETIC RESIN FOR LIGHT COLORED PAINTS, VARNISHES AND ENAMELS. Bakelite XR-4036, a synthetic resin yielding light colored oleo-resin varnishes which remain clear although thinned entirely with petroleum solvents. These varnishes, and the paints and enamels made from them, are exceptionally free from skinning, show little or no after-yellowing, and possess marked resistance to weathering. Bakelite Corp., River Road, Bound Brook, N. J. 83

"DUTCH BOY" LIQUID DRIER. This is a properly balanced drier, especially designed for use as a drying agent in white-lead paint. It is uniform, strong, and efficient. Sold in half-pint, pint, quart, and gallon sealed cans. National Lead Co., 111 Broadway, New York, N. Y. 84

"DUTCH BOY" ALL-PURPOSE SOFT PASTE WHITE-LEAD. A new-type soft paste white-lead which, in addition to being quick-mixing, can be used for inside flat or eggshell as well as outside gloss painting. Contains pure white-lead, pure linseed oil and a little turpentine—nothing else. $12\frac{1}{2}$, 25, 50 and 100 lb. steel packages. National Lead Co., 111 Broadway, New York, N. Y. 85

"DUTCH BOY" COLORS-IN-OIL. The new paste colors that can be added to paint without thinning. True in color tone. High in tinting strength. Easy to use. Especially suited for tinting white-lead paint. Line includes all colors in common use. Half pint, quart, and gallon cans; also tubes. National Lead Co., 111 Broadway, New York, N. Y. 86

"TONE-PHLEX" PENETRATING VARNISH. Penetrates the wood, binds fibres together and increases the wood's resistance to wear. Contains no waxes or non-drying oils and will not raise the grain. Will not show an overlap when a worn spot is refinished. Can be applied

with cloth, brush, or mop. Any color available. The Cromar Co., Williamsport, Pa. 87

COLOR "MASTERSEAL" WATER PAINT. Using a bituminous emulsion, with colors as a base. May be applied on damp or dry masonry surfaces, including fresh lime plaster or Keene's cement as soon as set up—either by brush or spraying. Will not discolor or rub off; may be washed. Although a water paint, it produces a waterproof surface. The Master Builders Co., 7016 Euclid Avenue, Cleveland, Ohio. 88

DEGRACO SYNTHORIZED PROCESS. Produces a paint film that is absolutely lime proof, with high resistance to acid fumes, acid water and other destructive agencies. It is also used in "Duralum," an aluminum finish. Detroit Graphite Co., Detroit, Mich. 89

"MIRA-LITH." One-coat paint for Celotex, Insulite, Nu-Wood, etc. It bridges matted fibres instead of filtering in as do ordinary paints. Seals smoothly, washable and waterproof, in one application without sizing. Mitchell-Rand Mfg. Co., 51 Murray Street, New York, N. Y. 90

NEW BAKELITE FLEXIBLE COATING RESINOID. A phenolic resinoid of great flexibility, highly resistant to oils, common solvents, and mild alkalis and acids. It is produced in a wide range of colors, and may be applied by calendaring to fabric for a great variety of uses—from ladies' evening slippers to shower curtains and wall covering. First employed for waterproof surgical adhesive. (Developed in collaboration with the Revolite Corporation.) Bakelite Corp., River Road, Bound Brook, N. J. 91

ALUMILITE PROCESS. This anodic treatment of aluminum, giving the metal a most durable surface, is recommended for store fronts. It requires less maintenance than most other types of store-front materials. Aluminum Co. of America, Pittsburgh, Pa. 92

CHEMICALLY RESISTANT INTERIOR COATINGS. Employing, over the maker's rust-inhibiting primer, a finishing coat of aluminum bronze or other suitable pigment in a 25-gallon or 12½-gallon varnish based on Bakelite XR-1329 (or, for lighter colors, XR-4036), there is provided exceptional protection to machinery and equipment subjected to corrosive influences, as in a chemical factory. Bakelite Corp., River Road, Bound Brook, N. J. 93

CORROSION-RESISTANT EXTERIOR COATING. By employing, over the below described primer, a finishing coat of aluminum bronze in either a 50-gallon or 33-gallon varnish based on Bakelite XR-1329 resin as vehicle, ex-

ceptional protection is afforded structural steel. Of particular value as a coating for bridges over railroads, or for steel exposed to salt-laden air. Bakelite Corp., River Road, Bound Brook, N. J. 94

RUST-RESISTING PAINTS. Freshly made-to-order paints, for industrial, marine, railroad, buildings (exterior and interior), bridges, etc. Vehicle is a high-grade gum. Made to suit individual conditions. Artic Chemical & Combustion Engineering Corp., 209 King Street, Brooklyn, N. Y. 95

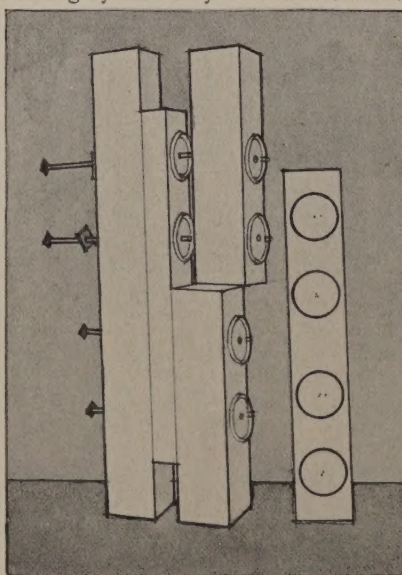
RUST-INHIBITING PRIMER. By employing as vehicle a 50-gallon or 33-gallon Bakelite XR-1329 varnish, and as pigment one containing at least 25 per cent of zinc chromate, a primer is obtained of outstanding value as a rust-inhibitor. Bakelite Corp., River Road, Bound Brook, N. J. 96

26. Glass and Glazing

"AKLO" GLASS. Of special chemical composition which has the property of absorbing heat. Transparent with slight blue-green tint that is unobjectionable. Absorbs the infra-red rays excluding summer heat. Is more resistant to sudden temperature changes than ordinary glass. For many places where heat from sun or from electric lights should be excluded. Formula by Corning Glass Works. Libbey-Owens-Ford Glass Co., Toledo, Ohio. 97

27. Hardware

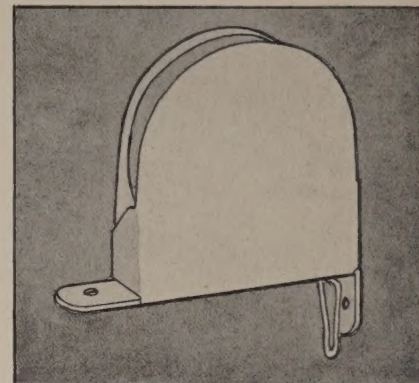
MODERN TIMBER CONNECTORS are inexpensive devices for increasing efficiency of timber framing by increasing joint strength. The illustration shows but one type of several that were introduced in 1933 in America through the U. S. Department of Commerce, and thoroughly tested by U. S. Forest Prod-



◀ ARCHITECTURE ▶

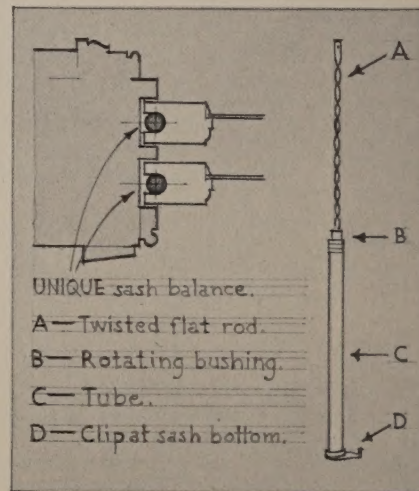
ucts Laboratory. Timber Engineering Co., 1337 Connecticut Avenue, N. W., Washington, D. C. 98

CALDWELL TYPE S SASH BALANCE. A new style pressed-steel balance designed for residential sash used with plank frames and narrow mullions.



Occupies a mortise $\frac{3}{4}'' \times 3\frac{1}{2}'' \times 3''$, so will not interfere with any type of weatherstrip. For sash weighing from 4 to 19 pounds. The Caldwell Mfg. Co., Rochester, N. Y. 99

"UNIQUE" WINDOW BALANCE. Fits in ploughed side rails of sash, eliminating weight-boxes, pulleys, cord, and pulley-holes. Installed after all trim-



ming and incidental work for windows has been finished. Affords narrow mullions and narrow trim. S. H. Pomeroy Co., Inc., 280 E. 134 Street, New York, N. Y. (in association with Unique Balance Co.). 100

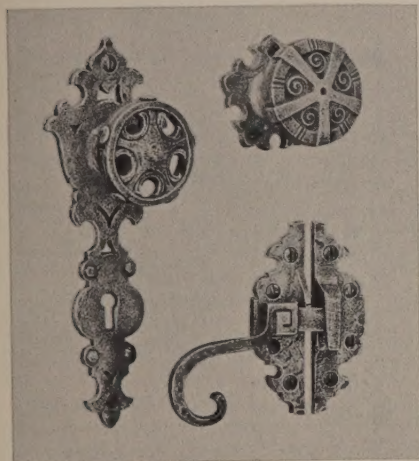
"DUOFOLD" PARTITIONS. Under A. C. F.-Fairhurst patent, partitions are divided into a given number of doors of specified type and thickness. Sections are hinged in pairs, with invisible hinges. Partitions roll on ball-bearing casters on small track flush with floor. Top guides in steel groove. Top and bottom vertical adjustment. American Car and

Foundry Co., 30 Church Street, New York, N. Y. 101

RAWL-ANCHOR. An improved one-piece, double-ended double-expanding anchor. Will hold any size bolt from $\frac{1}{4}$ " to 1" in masonry. Double aluminum alloy cones when caulked force lead out to grip. The Rawlplug Co., Inc., 98 Lafayette Street, New York, N. Y. 102

CONCEALED OVERHEAD DOOR HOLDER, G-J-100. For single and double acting doors, 26" to 48". Mechanism mortised in top, showing only flat bar to pivot in head, when open. Engages and holds door at 90°. Safety release and encased shock-absorber. Not affected by door sagging. Glynn-Johnson Corp., La Porte, Ind. 103

LORD LEICESTER HARDWARE DESIGN. Cast of hard white-bronze, reminiscent of the craftsmanship of the



iron worker of olden days. Each piece individually hand-finished. The illustrations show only a few of the available pieces. Sargent & Co., New Haven, Conn. 104

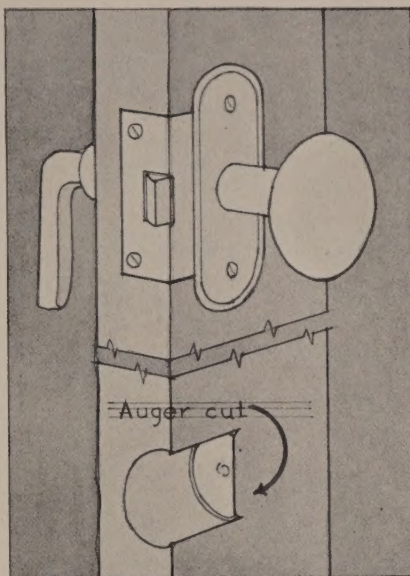
CALDWELL SAFETY DOOR GUARD. A combination safety guard and ventilator for residential doors. May be locked in the open position to permit ventilation and prevent slamming or rattling. Made in polished bronze. Will fit any door. The Caldwell Mfg. Co., Rochester, N. Y. 105

RIXSON CHECKING PIVOT HINGE. On lavatory doors, toilet stalls, office rail gates, a patented pressure-equalizing valve opens if excessive strain is exerted and produces a uniform predetermined pressure. Prevents slamming and saves damage to partitions. Mounts either to open or close the door. The Oscar C. Rixson Co., Chicago, Ill. 106

RIXSON CONCEALED OVERHEAD DOOR CHECK. A single-acting check for interior doors, especially hollow metal, with pocket span $1\frac{3}{8}$ " x $3\frac{3}{8}$ " within head and hinge stiles. No ex-

posed parts when door is closed. Non-handed. Spring power adjustable. Checking stroke fully controlled. Patented safety relief valve. The Oscar C. Rixson Co., Chicago, Ill. 107

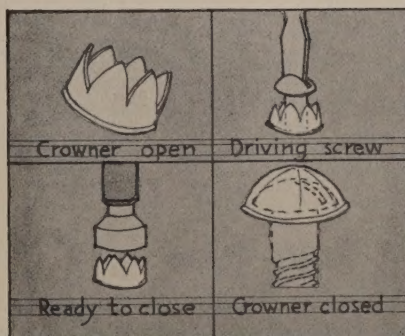
FRENCH MORTISE LOCK. Doing away with the necessity of major excavations in door woodwork, weakening its structure. One cut with an auger is



all that is needed. Catches flush with woodwork and always in line with the strike. For inside and outside doors. French-Mortise Lock Co., 551 University Avenue, St. Paul, Minn. 108

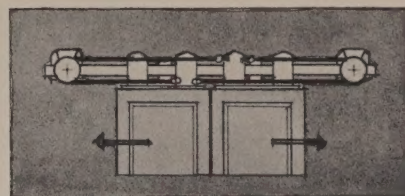
LOK-CROWNER. A two-piece device which seals and conceals exposed screw and bolt heads, and also locks the screw, bolt or nut so that it cannot come off from vibration or shrinkage. Rustproof. Bakelite caps for insulating on electrical assemblies. The Rawlplug Co., Inc., 98 Lafayette Street, New York, N. Y. 109

THE CROWNER. A simple one-piece device which seals and conceals exposed screw and bolt heads. Rustproof and made to match any desired finish. Per-



mits use of stronger and less expensive screws. Prevents tampering with bolts or screws. The Rawlplug Co., Inc., 98 Lafayette Street, New York, N. Y. 110

WESTINGHOUSE CENTRE OPENING DOOR HANGER. For use on power-operated and manually operated doors. The drive from one door to the opposite is accomplished by a rubber-



covered steel cable operating over a pair of sheaves, one placed at each extremity of door to form a continuous loop, with one door attached to upper cable, one to lower. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 111

SASH OPERATING APPARATUS. As an improvement, simplifying and protecting concealed parts, system provides for concealing these in wall chases, enclosed in steel casings, with adjustable brackets for support, and with access plates. Avoids collecting dirt and plaster in actuating parts after installation. Lord & Burnham Co., Irvington, N. Y. 112

WHITCO TRANSOM AND AWNING SASH HARDWARE. Designed for schools, gymnasiums, industrial and public buildings, for sash ranging from 18" to 54" in height. Sash can be held open at any angle; friction adjustable to meet operating conditions. Carpenter can install. Vincent Whitney Co., 130 Tenth Street, San Francisco, Calif. 113

ALERT ELECTRIC DOOR CONTROL. All-electric, for opening, closing, locking; sliding, swinging or overhead doors. Particularly for garage and warehouse, but adaptable for outside gates, etc. Switches may be push-button, lock, or tread. The Alert Electric Door Control Co., 1948 So. Los Angeles Street, Los Angeles, Calif. 114

ELECTRIC OPENER FOR "BARCOL" OVERDOORS. Key switch in driveway post releases magnetic latch, doors being raised by counterbalancing spring, quietly braked. Doors closed by hand. Economical compromise between hand operation and full motor-driven control. Barber-Colman Co., Rockford, Ill. 115

"GARAGE BOY" AUTOMATIC DOOR OPERATOR. Motive power from weights on wall, for hinged doors opening out. On going out, doors are opened by hand; car depresses runway contact to close them. On entering, car opens doors by runway contact; operator closes them by hand. No slamming. Purdy Door-Operator Co., Inc., 381 Fourth Avenue, New York, N. Y. 116

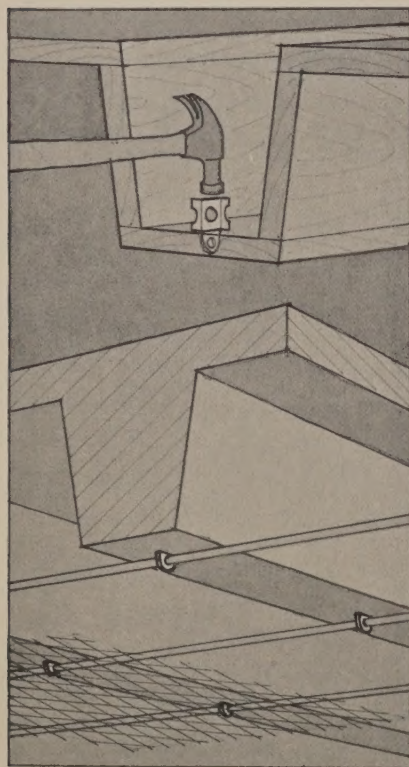
"MIGHTY MIDGET" ELECTRIC GARAGE DOOR OPERATOR. For

« ARCHITECTURE »

roll-up and swing-up doors. Operates from key switch post outside, thumb lever inside. Takes power from electric plug outlet. Minimum headroom for swing-up door, 5½" above door top; for roll-up, 11½" for 13½" doors, 15" for 13¼" doors. The Stanley Works, New Britain, Conn. 117

RADIO CONTROL OF GARAGE DOORS. Approaching, driver pulls a knob on instrument board, sending radio code message to open door and, if at night, switch on driveway lights. One receiver acts for two-car garage but opens only allocated door for right car. Utilizes car's timer, coil, and battery for sending. Barber-Colman Co., Rockford, Ill. 118

NEW UNION NAILER CEILING INSERT. For use with suspended ceilings below concrete slab. Drives into forms like a nail, and when forms are re-



moved the driven blade with hole is exposed to which to fasten wire or ¼" (also ⅜" size) rod. Permits flat lath instead of high-rib. Union Steel Products Co., Albion, Mich. 119

"UNIT-FOLD" PARTITIONS. Under A. C. F.-Fairhurst patent, partitions are divided into door sections without visible hardware except end-door operating handle. Doors mounted on single heavy ball-bearings, two casters to each door. Top and bottom locking device, top guide having automatic vertical adjustment. American Car and Foundry Co., 30 Church Street, New York, N. Y. 120

28. Furnishings

METAL FOLDING CHAIRS. For various auxiliary seating purposes. All bracing connections securely riveted. Will not tip or collapse even with pressure at extreme outer edge of seat. Variety of finishes and upholstery. The Stewart Iron Works Co., Cincinnati, Ohio. 121

METAL CABINETS. For hospital use, free-standing or recessed, made of Allegheny steel. A recessed wall cabinet with glass doors; a free-standing cabinet for hospital and lavatory use; a recessed tall cabinet with glass doors above, steel below, for medical supplies, etc. Watson Mfg. Co., Jamestown, N. Y. 122

SHAW-WALKER DOUBLE-PURPOSE COUNTERS. Rounded out to include box-drawer sections, coin and currency trays, swinging gates, four styles of tops, continuous backs of two grades, foot rails, screens, base moulding. The Shaw-Walker Co., Muskegon, Mich. 123

STORE DISPLAY EQUIPMENT IN METAL. A designing and planning service to architects on store and display equipment. Each problem individual, with stock or special cases, such as in John Wanamaker's Men's Store in Philadelphia. The W. S. Tyler Co., Cleveland, Ohio. 124

"WALL-TEX." A strong fabric impregnated with the highest quality oils and pigments. Printed patterns in variety of color and design. Repeated washings over years will not harm them. Plain colors eliminate painting over canvas. Columbus Coated Fabrics Corp., Columbus, Ohio. 125

WATER-FAST WALL PAPERS. No amount of water applied to the surface will affect the brilliancy of the colors. Spots removed by sponge and soap-suds. Impossible to detect, without testing, any difference between it and regular wall papers. M. H. Birge & Sons Co., Niagara and Maryland Streets, Buffalo, N. Y. 126

COLUMBIA AUTOMATIC STOP FOR VENETIAN BLINDS. Will stop the blind at any height without the necessity of fastening the lifting cords. Stop is furnished with Imperial blinds as regular equipment. The Columbia Mills, Inc., 225 Fifth Avenue, New York, N. Y. 127

29. Plumbing

"AIRCOWELDING." A new and simplified welding technique for pipe-line construction. Makes puddling unnecessary; saves welding time; saves in gas and rod consumption; welds free from porosity; welds stronger than base or parent metal; learned in a few hours by

field welders. Air Reduction Sales Co., Lincoln Bldg., New York, N. Y. 128

ARCO CAST-IRON THREADED PIPE. Can be cut and threaded with standard tools; selling on same general price level as standard galvanized steel pipe. Cast vertically in dry-sand molds with dry-sand cores, it is without seams or gate marks. Provided in 6', 12' or longer lengths, and 1½", 2", 2½", 3", 4", 5" and 6" sizes. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 129

STEEL FITTINGS FOR LIGHT WALL PIPE. For hydraulic pressures of 200 pounds per square inch (more on smaller sizes), made from 10-gauge steel by welding. Half the weight of cast-iron, lower erection costs, lighter supports, are claimed, with minimum flow resistance. Plain end, flanged, or flanged one end. Taylor Forge & Pipe Works, P. O. Box 485, Chicago, Ill. 130

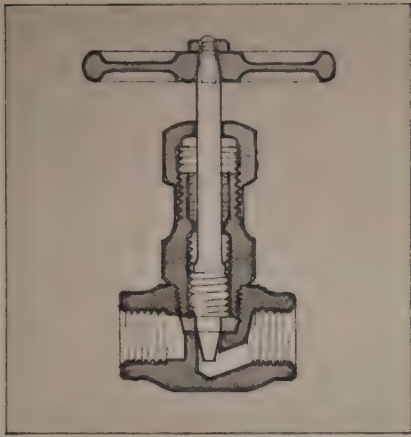
LUNKENHEIMER "N-M-D 123" VALVE. A non-metallic disc bronze valve embodying new and also established features of design. Discs available for steam, for hot water, and for cold water, gas, and air. For 150 lbs. steam pressure and 300 lbs. gas-liquid pressure. The Lunkenheimer Co., Cincinnati, Ohio. 131

WROUGHT COPPER FITTINGS. To make possible the elimination of cast metal at vital points in copper piping installations there is being added to the "Arco" line: wrought copper integral tee; threaded wrought copper elbow; red brass gate valve, in sizes up to 1". Elbow provided for male, female, and most standard reduction connections. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 132

NEW LEAD REDUCING BEND. Four-inch diam. at one end, 3" at other, for use when codes permit 3" soil lines. Eliminates sanitary T and regular bend and costs less than these two with ferrule. The Eagle-Picher Lead Co., Cincinnati, Ohio. 133

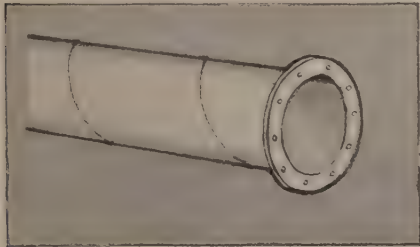
SELF-CLOSING METERING FAUCET. Metering faucets are usually either too cumbersome in appearance or—to avoid this—have working parts too small to give service. This new model puts all working parts under the lavatory slab. Has a wide range of regulation, without taking faucet apart. Push-button type, sturdily built. The John Douglas Co., Cincinnati, Ohio. 134

HIGH - PRESSURE NEEDLE VALVES, newly designed to be as small and compact as possible, for service in industries where measuring pressures or volume of flow of fluids or gases is done, and where a very gradual re-



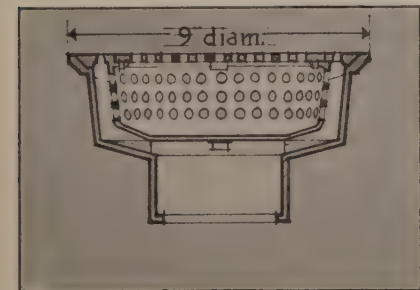
lease of pressure is necessary to prevent damage to pressure gauges and meters. Crane Co., 836 So. Michigan Avenue, Chicago, Ill. 135

TAYLOR SPIRAL WELDED PIPE. Made from 14 to 10-gauge steel or Armco Ingot Iron, with spiral lap weld. Seams reinforce pipe and are its strong-



est parts, with bursting strength limited only by strength of materials, not welds. Smooth, full-flow interior. Taylor Forge & Pipe Works, P. O. Box 485, Chicago, Ill. 136

JOSAM NON-CLOG AREAWAY OR FLOOR DRAIN. For use where there is sediment in drain-water which should be prevented from entering sewer lines.



Non-clog in that the drain will function even after the sediment container is filled. Cast iron or brass. Josam Mfg. Co., Euclid Building, Cleveland, Ohio. 137

NEW BUFFALO SINGLE SUCTION SELF-PRIMING PUMP. A very compact, husky, and economical unit. Two types of impellers are available: the open

type for sump service, and the enclosed type for clear liquids. Furnished complete with all necessary fittings; built in several sizes in capacities up to 450 g. p. m. and for heads up to 150 ft. Buffalo Pumps, Inc., Buffalo, N. Y. 138

WESTCO TURBINE-TYPE CELLAR DRAINER AND SUMP PUMP. Horizontal design and self-priming system permit mounting at top of sump, high and dry and open to inspection. Lifts water 25-28 ft. Capacities, 5, 10, 15, 20, 25 g. per m. Westco Pump Corp., Davenport, Iowa. 139

KEWANEE STEEL WELDED TANKS. For storage water. This line is in addition to the Kewanee riveted tanks, and is made in 14 sizes: 66-525 gals., "Standard" and "Extra Heavy." Have particularly neat tapping with inside welding collars. Aluminum painted. Kewanee Boiler Corp., Kewanee, Ill. 140

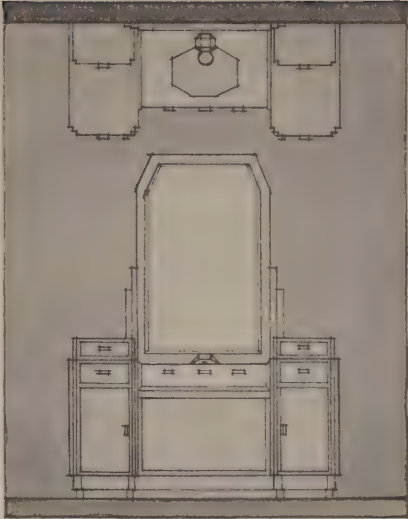
NEW RUUD AUTOMATIC STORAGE WATER HEATER. In three sizes: 20, 30, 45-gal. tank capacities. Gas flow thermostatically controlled; of "all-on or all-off" type; with safety pilot. Tanks of g. i. or copper, and replaceable. Rock-wool insulation. Ruud Mfg. Co., Pittsburgh, Pa. 141

"SCUTTLE-A-DAY" HOT WATER SUPPLY BOILER. A new model, with special fire-brick combustion ring to prevent chilling of fire. Virtually immune from rust or corrosion. Screw-nipple connections to insure uniform contraction and expansion. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 142

INDUSTRIAL CHEMICALS. A line of chemicals for use in power plant equipment of all types: boiler compounds, rust preventives, de-scalers, etc. Artic Chemical & Combustion Engineering Corp., 209 King Street, Brooklyn, N. Y. 143

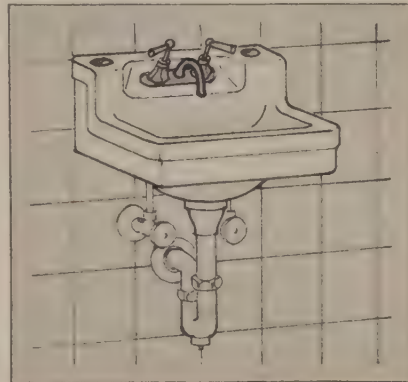
ARCO PANEL UNITS. Provide bathroom fixtures backed by soundproof and waterproof metal panels to contain all piping, so that fixtures can be installed without disturbing existing walls. Each panel contains all necessary accessories, such as medicine cabinet with the lavatory, and special interlocking panels are made to furnish complete prefabricated bathroom in a variety of finishes. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 144

LADY LUXURY VANADOIR, MODERNE MODEL. Combination dressing-table and lavatory. Cabinet work is of galvanized water-repellent furniture steel, in plain colors and wood grains. Hot and cold piping and drain concealed by removable panel. For dressing-rooms lacking both facilities.



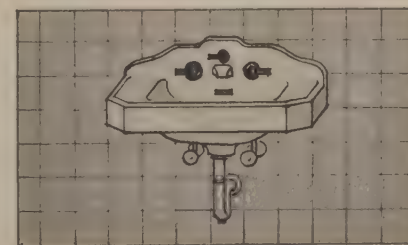
Lady Luxury Division, Excelso Products Corp., 1807 Elmwood Avenue, Buffalo, N. Y. 145

"DENTRIX," a new dental lavatory of vitreous china, 12" x 12", with integral open strainer and compact hot and cold supply fixture. It seems likely that the



time is near when people will no longer use the same lavatory for the washing of hands and mouth. Crane Co., 836 So. Michigan Avenue, Chicago, Ill. 146

STANDARD "MARLTON" VITREOUS CHINA LAVATORY. Designed for use when space is limited but a fine fixture is desired. Length, 26"; width,

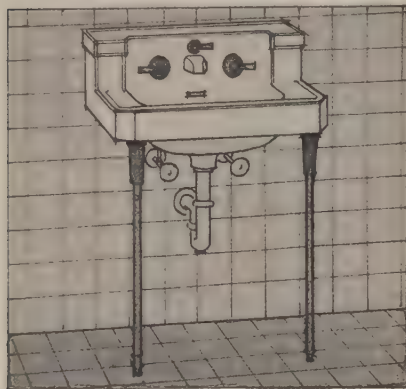


14"; bowl, 17 1/4" x 10 3/8". Chromard finish combination fitting has lever handles. Standard Sanitary Mfg. Co., P. O. Box 1226, Pittsburgh, Pa. 147

« ARCHITECTURE »

CRANE "RIVAL" LINE BRASS, for lavatory, bath, and shower, includes the staple trimmings made of the same quality of materials as the regular Crane brass goods, but to smaller specifications, lighter, and lower-priced, to enable contractors to meet cost demands. Crane Co., 836 So. Michigan Avenue, Chicago, Ill. 148

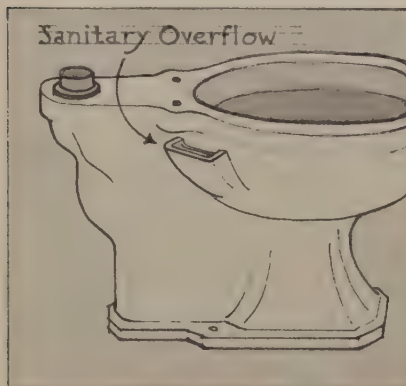
STANDARD VITREOUS CHINA "COMPANION" LAVATORY. Modern in its straight-line design. Compact, offering ample washing space and con-



venient shelf in 22½" x 18". Integral combination spout properly located for drip and high enough to comply with sanitary codes. Standard Sanitary Mfg. Co., P. O. Box 1226, Pittsburgh, Pa. 149

"STRATE-LINE" LAVATORY. Designed to provide a vitreous china lavatory carrying out the straight lines of modern design. It has front legs of chromard with two metal side rails between legs and wall to serve as towel racks. Standard Sanitary Mfg. Co., P. O. Box 1226, Pittsburgh, Pa. 150

DOUGLAS BOWL WITH SANITARY OVERFLOW. Eliminates the possibility of back siphonage of water-closet bowl into fresh water supply line. Con-



struction of bowl, rather than any mechanical device, holds the water level in the bowl below the flushing rim, prevent-

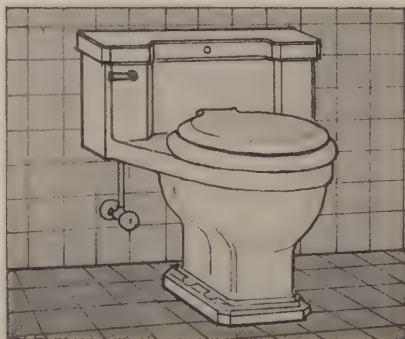
ing cross connection and therefore back siphonage. The John Douglas Co., Cincinnati, Ohio. 151

STANDARD "COMPACT" CLOSET. Has vitreous china tank and bowl bolted together into one compact unit, eliminating the customary flush connection. This model saves space, does not require wall support. Has deep seal, ample water area, strong flush with less than usual amount of water. Standard Sanitary Mfg. Co., P. O. Box 1226, Pittsburgh, Pa. 152

"LEXEL," a one-piece compact water-closet, particularly for remodelling, but also for new work. Overall depth, only 26". Back and all exposed surfaces glazed, making possible free-standing, corner, or wall installation. Action, siphonic with jet. Crane Co., 836 So. Michigan Avenue, Chicago, Ill. 153

SPEAKMAN "SI-FLO" CLOSET COMBINATION. A flush valve and closet bowl in which every effort has been made to reduce noise. In any standard color, with seat matching, or other variations. Valve chromium plated, in straight stop to wall or angle stop for r. or l. Speakman Co., Wilmington, Del. 154

"STANDARD" ONE-PIECE CLOSET. Quiet enough to be inaudible outside the bathroom. Compact, easily



cleaned, all in one piece of vitreous china. Height, 23". Matches design of Companion lavatory. Standard Sanitary Mfg. Co., P. O. Box 1226, Pittsburgh, Pa. 155

SPEAKMAN "SI-FLOW" FLUSH VALVE. Eliminates noises caused by throttling and "bump" of closing. Compact piston unit which, if it should wear out, can easily be replaced. Supplied for practically any type of bowl. Chromium plated. Speakman Co., Wilmington, Del. 156

FIFIELD IN-A-WALL SHOWER BATH. Folds entirely into depth of ordinary partition and shows nothing but a door when closed. Opens door, pan, and curtain on square frame with a single motion. In-a-Wall of Painesville, Ohio. 157

"FOLDSPRAY" SHOWER CURTAIN FIXTURE. Replacing several sizes of ordinary shower curtain and rod combinations. No overhead rail, no sliding parts. Pivoted rods like towel rack spread curtain, end of which hooks on wall to complete enclosure. One size, one style. Scovill Mfg. Co., Waterville, Conn. 158

WEIS COTTAGER SHOWER CABINET. Completely equipped and ready for bathing when assembled and attached to supply and waste lines; is especially for use in basements of homes, servants' quarters, summer cottages, camps, etc. Galv. steel receptor with wood base; galv. steel walls trimmed with cadmium plating. Henry Weis Mfg. Co., Inc., Elkhart, Ind. 159

POWERS THERMOSTATIC WATER MIXER. Thermostatically mixes water for showers, tub baths, hydrotherapy. Delivery temperature remains constant regardless of pressure or temperature in supply. Both top and bottom outlet, for tub and shower over, replacing usual supplies. The Powers Regulator Co., 2720 Greenview Avenue, Chicago, Ill. 160

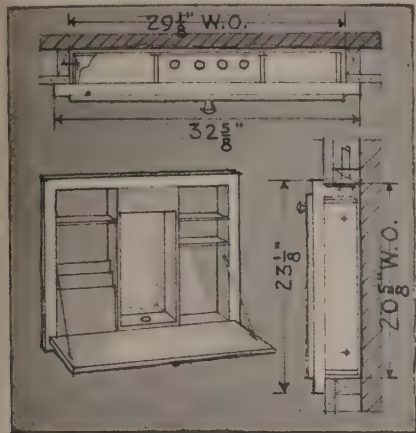
"STANDARD" NO. 1 LINE FITTINGS. Plumbing fixture fittings of modern design that will not break or chip—a complete line of modern brass fittings with a chromard finish, to be used wherever desired instead of china fittings. Standard Sanitary Mfg. Co., P. O. Box 1226, Pittsburgh, Pa. 161

CUSTOM-MADE RESIDENCE SINK OF STAINLESS METAL. With rounded corners and all welded construction with joints ground and polished. Fixture apparently one piece of metal with permanent satin-like finish. Chromium plated wastes. In one or two compartments. Drainboards ribbed and pitched. The Edwards Mfg. Co., Eggleston Avenue and Fourth Street, Cincinnati, Ohio. 162

"EDGE-LITE" BATHROOM CABINETS. Movable lights on door or mirror frame. One unit complete with lights, mirrors and wiring, for recess. Another, complete door only with lights. Another, the "Aplakay" fixture for existing cabinet. Another, mirrors and "Edge-Lite" for wall. Another, "Edge-Lite" with single and winged mirrors, table and stool. Faries Mfg. Co., Decatur, Ill. 163

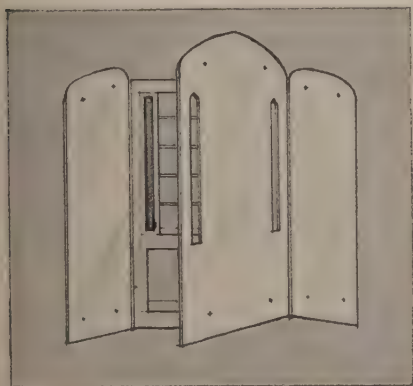
GARDINER-VAIL BATHROOM ACCESSORIES. Intended for use on structural glass wall surfaces, but may be used on tile or other similar material. Made in brass, chromium-plated over nickel-plating. Each piece equipped with anchors for rigid mounting in plaster of Paris. Gardiner-Vail, Inc., 230 No. Jefferson Street, Chicago, Ill. 164

MIAMI COMBINATION DESK AND DRESSING-TABLE. Recessed into wall, as a bathroom cabinet, or mounted on wall with a super buck. Made of



steel with writing-table top of plate glass. The economical solution of the hotel room, saving more expensive furniture and valuable space. Overall, 23 1/8" high, 32 5/8" wide, 4 1/8" deep. Miami Cabinet Division, The Philip Carey Co., Middletown, Ohio. 165

MODEL G LAWCO "MIRROR-LITE" CABINET. Mirrors held on doors of recessed cabinet by chrome studs. Completely wired for pair of



side lighting panels using four standard bulbs; wall switch. Furnished in standard white lacquer or colors to specification. Chrome piano hinges. The F. H. Lawson Co., Cincinnati, Ohio. 166

MODEL H LAWCO "MIRROR-LITE" CABINET. Similar to Model G, described above, except that mirrors are in chromium-plated frames and are a trifle smaller. Centre mirror, 21" x 35"; side wings, 10" x 31"; wall opening, 21 3/4" x 28 1/8" x 4 1/2". The F. H. Lawson Co., Cincinnati, Ohio. 167

30. Heating and Ventilating

SUPERFEX OIL-BURNING AIR-CONDITIONING HEATING PLANT. Produces conditioned air by

completely automatic operation. Filters, warms, humidifies, and circulates the air. Oily steel-wool filter; evaporating pan humidification; integral burner, all in balanced design. Perfection Stove Co., Inc., Cleveland, Ohio. 168

DAILAIRE COAL FURNACE, SERIES 200. Built in two sizes, following Dailaire principle of flue design on each side, wedge-shaped combustion dome, telescoping tube assembly, welded parts. An efficient coal-burning system from which one can shift to oil with little loss of the efficiency of Dailaire oil-burning unit. Dail Steel Products Co., Lansing, Mich. 169

"HEATMASTER" MODEL K AIR CONDITIONING UNIT. Completely automatic operation. All controls and blower motor inside of compact casing. Greater air volume at lower temperatures. Burners are special two-stage patented "Surface Combustion" type. Approved by American Gas Assn. Surface Combustion Corp., Toledo, Ohio. 170

"IDEAL FLUID HEAT" OIL-BURNING BOILER. A combination of cast-iron sectional boiler and "Fluid Heat" rotary wall-flame oil-burner, in attractive rectangular casing. Up to 800 sq. ft. of steam or 1250 sq. ft. of hot-water radiation. Built-in coil of 60-gal. capacity for domestic hot water. Fluid Heat Division, Anchor Post Fence Co., Baltimore, Md. 171

ARCOLA HEATER. Provides a popular-priced and practical radiator heating plant for small homes and buildings, particularly without basements. Used on same level as radiators, heater itself used to heat one room. Burns coal, oil, or gas. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 172

BIG COIL WATER HEATER AND SPINNER BLADES. In Kewanee round type "R" boilers. The big coil gives extra capacity for the domestic hot water supply, and the spinner blades give extra efficiency by forcing the gases into more intimate contact with the two-pass tubes. Kewanee Boiler Corp., Kewanee, Ill. 173

GENERAL ELECTRIC NEW SMALL OIL FURNACE. Similar and additional to large unit announced last year. Rated at maximum of 133,000 B. t. u. per hr., equivalent to 555 sq. ft. steam or 885 sq. ft. hot-water radiation, for steam, vapor or hot water systems. With G. E. warm air conditioner; can be used with air-duct systems. Size, 60" high, 29" diam. over jacket. Built-in hot-water coil. General Electric Co., 570 Lexington Avenue, New York, N. Y. 174

"IDEAL" MAGAZINE BOILER NO. 15. Providing a new moderate-size boiler for solid fuel that needs firing only

at long intervals. For jobs requiring 200 to 1350 sq. ft. steam or 320 to 2160 sq. ft. hot-water radiation. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 175

IDEAL OIL BURNING BOILER NO. 12. All doors and internal parts are hidden in its rectangular enamelled steel casing. For use with either rotary or gun-type burners. Constructed to force gas travel four times the boiler's length. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 176

KEWANEE INDIRECT HOT WATER HEATING COILS. Kewanee square type "R" boilers are now fitted with indirect coils if desired, for heating domestic hot water. May be used for gravity circulation with storage tank or for instantaneous tankless performance. Capacities from 150-720 gals. Kewanee Boiler Corp., Kewanee, Ill. 177

"OIL HEAT SERVANT." A combination hot-water or steam boiler and domestic water heater fired by a Johnson Oil Burner using No. 3 furnace oil. Normal rating of 150,000 B. t. u. output per hr. for homes requiring 625 sq. ft. steam radiation or 1,000 sq. ft. hot water. S. T. Johnson Co., 940 Arlington Avenue, Oakland, Calif. 178

"PETROLA." The "Arcola" heater equipped with an adaptation of the "Petro" Model W oil-burner. Latter is motor-fan type. For the small installation, particularly where there is no basement. Burner available also for Arcolas now in service. Petroleum Heat & Power Co., Stamford, Conn. 179

THATCHER "OIL MASTER" BOILER. Burns oil, for which it was designed. Five-way fire travel, large combustion chamber, heavy insulation, brick-lined and gasket-tight service doors, gray or green crystalline finish, and year-round hot water from internal water heater. The Thatcher Co., 39 St. Francis Street, Newark, N. Y. 180

"TORIDHEET" OIL-BURNER BOILER. A product of this company and American Radiator Co. "Toridheet" oil burner has high and low limit controls, low-water cut-out and feeder; built-in coil for domestic hot-water. All controls completely concealed by attractive jacket. Capacity, 750 sq. ft. of connected load. Cleveland Steel Products Corp., Madison at 74th Street, Cleveland, Ohio. 181

UNITED STATES CAST IRON OIL-BURNING BOILER. Utilizes extended rib-heating surface construction. Boiler develops high efficiencies through extending contact of hot gases with the heat-absorbing surfaces. Built-in year-round hot water supply. Thoroughly insulated, attractive metal jacket. United States Radiator Corp., Detroit, Mich. 182

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INDIVIDUAL RADIATOR VALVE WITH TWO RANGES, AUTOMATIC AND MANUAL. For places where completely automatic operation is not desirable, such as hotel rooms, hospitals, etc. The "Modustat" has been improved by the addition of a manual operating range. One lever, standard; also types for concealed radiation or key setting. All for 2-pipe steam systems. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 183

ARCO "RADIATHERM." Replaces hand-operated valve on a radiator in 2-pipe steam, vapor, or vacuum system, providing a temperature control for individual radiators. Set at any desired temperature it will valve the radiator accordingly. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 184

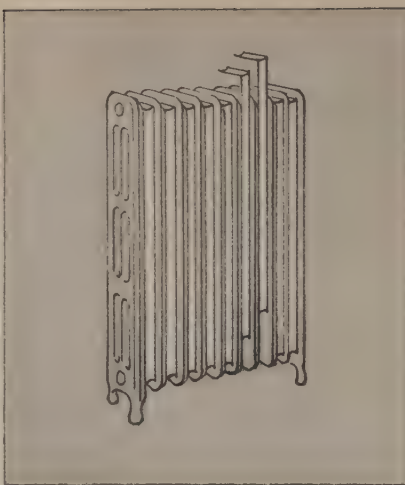
515 IDEAL VACUUM VALVE. Designed with a powerful bellows seal and special diaphragm action to vent radiators quickly, hold heat in them and prevent "sputtering." Can be used to convert a one-pipe steam into a vacuum system after system has been tightened against air leaks. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 185

"MODUSTAT." New design of self-contained automatic room-temperature control valve for individual radiators. For use only with two-pipe (direct, indirect or cabinet type) steam, vapor or vapor-vacuum heating systems operating on less than 10 lb. pressure or 10" vacuum. Automatically modulates flow of steam to radiator in accordance with the temperature requirements of room. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 186

VACUUM FORM. Functions as a condensation and a vacuum pump without moving parts. Steam entering the vacuum form operates a damper admitting cold air from flues connected to the chimney. The steam condenses, forming a vacuum which draws the condensation into the condensing chamber, and then into the boiler. United States Radiator Corp., Detroit, Mich. 187

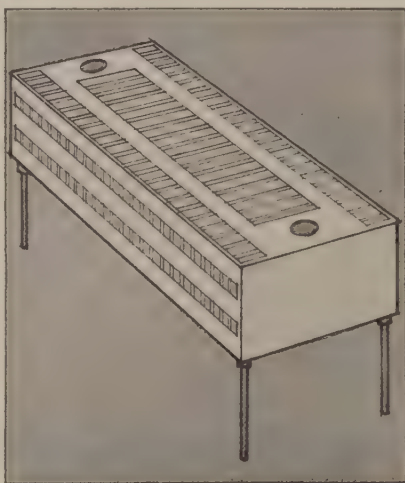
ARCO CONVECTOR. Utilizing fin-type radiation to provide a space-saving, cast-iron radiator that can be concealed without loss of heating efficiency. Available in 4 widths for either free-standing or recessed installation. American Radiator & Standard Sanitary Corp., 40 W. 40th St., New York, N. Y. 188

CRANE INVISIBLE RADIATOR SHIELD, for the tubular cast-iron type in all heights, widths, and assembly lengths. The pressed steel shield is slipped between the rear tubes, serving to direct the heated air out into the



room instead of towards the ceiling, and lessening the streaking of walls from dust-laden air. Crane Co., 836 So. Michigan Avenue, Chicago, Ill. 189

FINCAST RADIATOR. Applying the fin principle to cast-iron radiator design. In one piece without joints of any kind.



There is available a supplementary line of enclosures and front panels. United States Radiator Corp., Detroit, Mich. 190

EMERSON EXHAUST FANS. New design, new blade. Two-speed, installed in walls or windows, for horizontal or vertical discharge. Sizes 12" to 30". Ball-bearing motor. Lubrication once yearly. The Emerson Electric Mfg. Co., 2012 Washington Avenue, St. Louis, Mo. 191

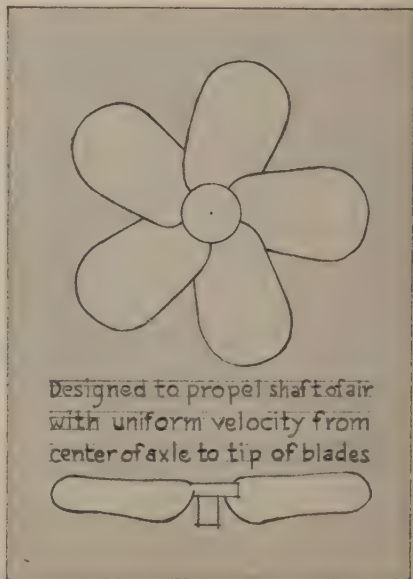
EMERSON VENTILATING FANS. For the home kitchen. Electrically reversible, for exhausting superheated air or cooking fumes, and for drawing in cool outdoor air. With adjustable mounting panels that do not interfere with window, or wall boxes with aluminum louvers. Various sizes and mountings. The Emerson Electric Mfg. Co., 2012 Washington Avenue, St. Louis, Mo. 192

GENERAL ELECTRIC "HOT-POINT" HEATERS. Auxiliary heaters of the fan type, in metal casing of two patterns. Heating units suspended in air stream of a quiet fan. Switch controls heating unit and fan together. Draws 1320 watts. General Electric Co., Schenectady, N. Y. 193

"PROTECTOVENT" WINDOW VENTILATOR. Combines fan, motor, and air filter. Slips under lower sash rail and plugs into electric outlet. Deflector adjustment. Closes tightly without removal. Widths, 20½" to 43¼", latter with two fans. Staynew Filter Corp., Rochester, N. Y. 194

ROYAL FAN ELECTRIC VENTILATOR. For positive removal of large volumes of heated air, fumes, smoke, gases, steam, etc. Head with inverted cone similar to Royal Double Cone Ventilator. Drained of rain and condensation. Functions as gravity type with motor shut off. Stack sizes, 12" to 48". Royal Ventilator Co., 415 Locust Street, Philadelphia, Pa. 195

ALLEN EXHAUST FANS deliver a solid shaft of air with uniform velocity from centre of hub to tip of blade, the equalization resulting from air cups at the centre. The sharp angle of the

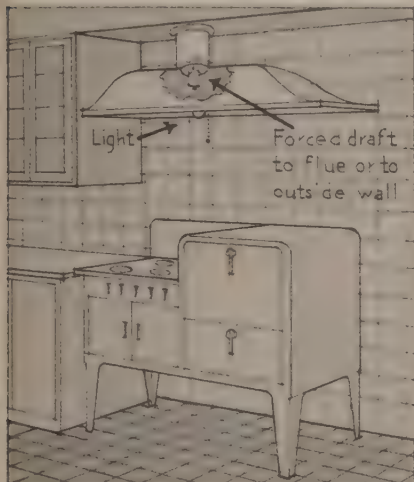


blades diminishes toward the tips. This means a smaller propeller, slower speed, smaller motor. Frames are one-piece cast aluminum. The Allen Corporation, 14th Avenue at Howard Street, Detroit, Mich. 196

VICTOR VENTILATOR, MODEL VT-28 IN-BILT. With 12" motor-driven fan, for residential use. Cylindrical telescopic sleeve fits any wall thickness, with square outside louvered panel. Chain pull operates fan and louvers. Brushed aluminum circular grille,

hinged, inside. Easily cleaned. Victor Electric Products, Inc., 712 Reading Road, Cincinnati, Ohio. 197

UNIVERSAL "STOV-DOME." Insures proper ventilation for domestic kitchens from directly over range. Built of dustproof enameled steel; carried by



wall brackets and toggle screws; removable. Vent into stove or incinerator flue, or through outside wall. Equipped with 6" fan, consumption of a 40-watt bulb. Universal Blower Co., Birmingham, Mich. 198

"COMFORT CONDITIONER." A new unit for room cooling and heating. Designed chiefly for restaurant and office use, but used for stores, small theatres and auditoriums. Provides an inexpensive method of dispensing cool and warm air. Neat in appearance and very quiet in operation. Casing is non-sweating, sound-absorbing insulating board. Requires only 20" headroom. Buffalo Forge Co., Buffalo, N. Y. 199

NEW MODINE UNIT HEATER. Improved structurally in its copper and copper alloy condenser, with more efficient velocity generators, deflectors, fans, motors, and general performance. Eleven models in graded capacities. Modine Mfg. Co., Racine, Wis. 200

WESTINGHOUSE UNIT AIR CONDITIONER. Cools and dehumidifies air in summer, heats and humidifies it in winter, and filters and circulates it at all times. These units are designed for installation under windows or along the wall and, where space is limited, a special unit is available for wall or ceiling mounting. Such a unit is especially applicable for lunchrooms and small shops. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 201

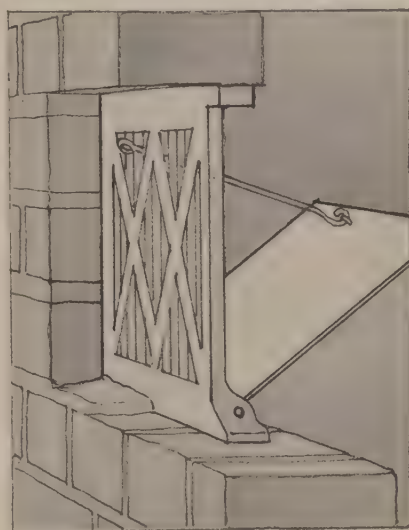
YORK AIR WASHERS. All ranges are adapted to jobs where relatively large volume of air is to be conditioned within an enclosure and distributed through ducts. Spray-type air washers necessary

for close regulation of the humidity within conditioned enclosure. York Ice Machinery Corp., York, Pa. 202

COPPUS AIR FILTERS. A line of dry-type air filters for ventilating systems and for air compression and internal combustion engines. Compact, constantly efficient, easily cleaned without removal or shutting down system. Coppus Engineering Corp., 344 Park Avenue, Worcester, Mass. 203

"MULTI-V-TYPE" AIR FILTER. A series of separate and distinct formations of V's, so that active filtering surface equals 27 times its face area. Dry cotton fabric type. Can be cleaned by ordinary portable vacuum cleaner. Wide variation in possible arrangements without centralization, such as in branch ducts. Staynew Filter Corp., Rochester, N. Y. 204

VICTOR VENT. Made of cast iron in one piece, with arch bar and bottom lugs extended for mortar joint insertion. Will support necessary brickwork above.



Size, 9" x 16". Rustless screen riveted to back. Hinged shutter of sheet iron, operated and fixed either open or closed by push-rod. J. W. Fiske Iron Works, 78 Park Place, New York, N. Y. 205

30f. Temperature Regulation

"CLIMATE CHANGER." A compact unit, completely enclosed, for air conditioning with single unit control. Humid warm air in winter. Circulates, cools, and cleans the air in summer. With built-in burner for oil or gas. The Trane Co., La Crosse, Wis. 206

"ACCUROTHERMETER." A scientifically made instrument for metering thermo degrees to within $\frac{1}{2}^{\circ}$ along entire scale. All shapes and sizes. Each indi-

vidually made for a particular instrument with special readings. Instrument Service Co., Inc., Division of Condenser Service & Engineering Co., Inc., Hoboken, N. J. 207

ARCO AIR MIXER. Convection-type enclosure incorporating special diffusion nozzles to introduce a minimum of very low-temperature air into a room, mixing this with the room air without perceptible drafts in summer air conditioning. For winter use the Mixer contains a Murray radiator for heating, and humidified air may be introduced through the unit for ventilation. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 208

G. E. PORTABLE UNIT COOLER. Combines condensing machine, evaporator, and fan in a cabinet provided with wheels to facilitate moving from room to room. Flexible connections for water and drain. Rating 4000 B. t. u. per hr.—sufficient capacity for average bedroom. General Electric Co., Schenectady, N. Y. 209

G. E. UNIT ROOM AIR CONDITIONERS. Two sizes, providing all elements of air conditioning—heating, cooling, filtering, humidifying, dehumidifying, ventilation, and air circulation. Ratings, 8000 B. t. u. cooling per hr. with 70 sq. ft. steam radiation; larger size, 15,000 cooling and 91 sq. ft. equivalent steam. General Electric Co., Schenectady, N. Y. 210

YORK CENTRAL SYSTEM AIR CONDITIONER, BASEMENT TYPE. For basement installation. Supply and return air ducts, connected to the conditioner, terminate in unobtrusive grilles. Operation same principle as that of large installations made by York. Combines in a single unit the fan, heating and cooling surface, mist-type humidifier, air filter and a complete York refrigerating unit. York Ice Machinery Corp., York, Pa. 211

YORK COIL TYPE UNITS. Coil type air conditioner, used primarily where close regulation of humidity is not necessary. Has distinct advantages over conventional bunker coil installation for vegetable, milk, meat and vegetable cold storage rooms. Adaptable to brine, ammonia, methyl chloride or freon. York Ice Machinery Corp., York, Pa. 212

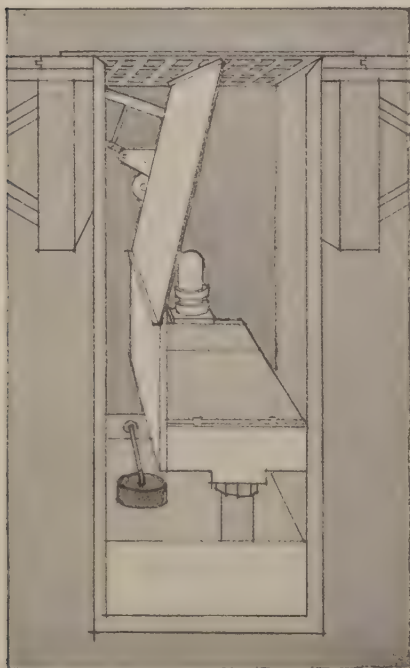
YORK UNIT AIR CONDITIONER, FLOOR TYPE. A compact year-round unit air conditioner. Within its rugged, corrosion-proof metal casing are compactly arranged all the elements of a complete air conditioning system: low-speed, quiet-operating fan and motor, duplex cooling and heating surface, mist-type humidifier and air filter. York Ice Machinery Corp., York, Pa. 213

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YORK UNIT AIR CONDITIONER, CEILING TYPE. For comfort air-cooling and heating. Adapted for ceiling or wall mounting, or for concealed installation where space does not permit the location of equipment within the conditioned area. Duplex cooling and heating surface. Low-speed, quiet-operating fan and motor. Single-screw controlled louvers for directing air flow. York Ice Machinery Corp., York, Pa. 214

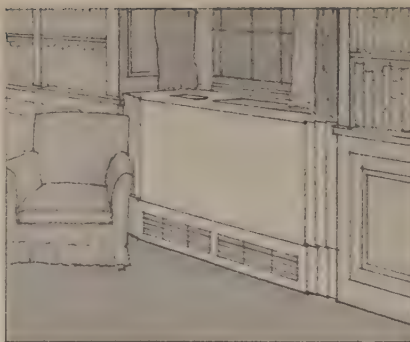
ARCO HUMIDIFIER A. A humidifying attachment for either steam or hot-water radiators. Heating medium from radiator flows through a coil in cylindrical casing at return end. This coil is immersed in water, manually supplied, causing constant vaporization. Electrical booster is plugged in for auxiliary heat for vaporization when needed. American Radiator & Standard Sanitary Corp., 40 W. 40th Street, New York, N. Y. 215

CHASE-ERSKINE "THERMOIST" HUMIDIFIER. A combination of an Erskine copper radiator and a humidifying device for use with steam-heating



systems. Eliminates wasteful sprays and insures proper amount of moisture for a given temperature. In cabinet, recessed, or below floor. Chase Brass & Copper Co., Erskine Radiator Division, Waterbury, Conn. 216

NEW MODEL C CAMPBELL AIR CONDITIONER WITH MAXIM SILENCER. Includes within under-window cabinet a 1 h. p. cooling unit as well as all the necessary apparatus to perform the seven essentials of air-conditioning: cooling, dehumidifying, heating, humidifying, ventilation, air-clean-

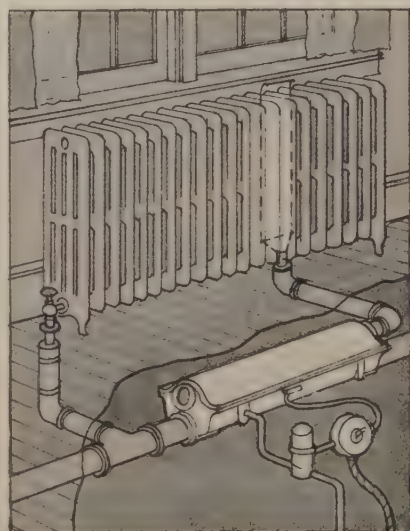


ing, and noise elimination. Campbell Metal Window Corp., Pershing Square Bldg., New York, N. Y. 217

GENERAL ELECTRIC AIR CONDITIONER. For winter use in connection with the G. E. Oil Furnace. Compact assembly of controls, motor, fan, filter, steam-heated humidifier, with solenoid valve water control. All in enamelled steel case. General Electric Co., 570 Lexington Avenue, New York, N. Y. 218

PORTABLE HUMIDIFIER. For those who cannot install permanent humidifying devices, or for apartment dwellers. Plugs into any electrical receptacle. Filled manually. Rotating mechanical atomizer; circulating fan. In an anodically treated aluminum housing of attractive design. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 219

HITCHINGS HOME AIR MOISTENER. A humidifying unit which can easily be installed in old work, provid-



ing a vaporizer in the cellar with an outlet flue masked by one of the radiators. Entirely automatic. Hitchings & Co., Elizabeth, N. J. 220

WESTINGHOUSE AIR CONDITIONER. Cools and dehumidifies in

summer, heats and humidifies in winter; filters and circulates the air at all times. In several cabinet patterns for under windows, along wall, or for ceiling mounting. Especially adaptable for restaurants, small shops. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 221

30g. Fuel and Fuel Feeds

B. & W. CIRCULAR MULTIFUELS BURNER. Suited to needs of small and moderate size industrial boiler plants. Horizontal turbulent type. Liquid, gaseous or solid (pulverized) fuels may be injected through a common throat opening. The Babcock & Wilcox Co., 85 Liberty Street, New York, N. Y. 222

B. & W. OIL-AND-GAS BURNER. Combining features of the Mechanical Atomizing Oil Burner with an efficient method of burning gas. Heat liberation capacities up to 70,000,000 B. t. u. per hr., using natural gas. The Babcock & Wilcox Co., 85 Liberty Street, New York, N. Y. 223

B. & W. WIDE-RANGE MECHANICAL ATOMIZING OIL BURNER. Quickly adjustable to operate efficiently over wide range of capacities. Utilizes two-passage system for oil, meeting at nozzle and sprayer plate. The Babcock & Wilcox Co., 85 Liberty Street, New York, N. Y. 224

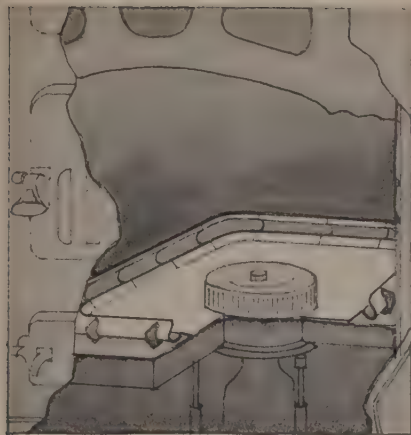
RAY BURNER, SIZE 000. In three types: AG-10, manually controlled; AG-200, fully automatic with gas-electric ignition; and AG-250, fully automatic with straight electric ignition. Basically identical with Ray Standards plus some important refinements. Ray Burner Co., 401 Bernal Avenue, San Francisco, Calif. 225

RAY VISCOSITY VALVE SYSTEM. Utilizing an automatic burner for heavy fuel oils such as C. S. G. No. 5 or No. 6 (Bunker C and Bunker B). Particularly adaptable in large sizes for heating plants of hotels, theatres, apartment-houses, hospitals, etc. Ray Burner Co., 401 Bernal Avenue, San Francisco, Calif. 226

"TORIDHEET" AUTOMATIC OIL BURNER. Wall-wiping flame type, for use in residential steam, vapor, hot-water or warm air systems. Improved features include the "Ropeller," which permits an exclusive method of fuel oil and lubrication distribution. Cleveland Steel Products Corp., Madison at W. 74th Street, Cleveland, Ohio. 227

TIMKEN SILENT AUTOMATIC OIL FURNACE. Greater economy and better vaporization of cheap oil are claimed through the introduction of the

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"steel flame-ring." Operates 200 degrees hotter than former rims. Complete automatic controls and domestic water heater are standard equipment. The Timken Silent Automatic Company, 100 Clark Avenue, Detroit, Mich. 228

IRON FIREMAN AIR VOLUME REGULATOR. To maintain a constant volume of air for any and all fuel bed conditions. With this regulator set to give correct volume for one condition, it will maintain this volume for any type of fuel bed. Available for 4A, 5 and 5A standard stokers, as well as the CD models. Iron Fireman Mfg. Co., Portland, Ore. 229

IRON FIREMAN AUTOMATIC ANTHRACITE BURNER ASH REMOVER. AAA Model. Using the screw conveyor and the agitator, which meshes with the screw. Delivers the ashes to the outlet and if by chance the receptacle has not been removed when full, it will push the receptacle away and continue to function. In three sizes. Iron Fireman Mfg. Co., Portland, Ore. 230

IRON FIREMAN FEED STOKER. A long machine to utilize the coal bin as the hopper. Available in lengths from 9' up to 25' in steps of 1'. With special hopper form of coal bin, this stoker makes coal firing automatic. Available in all R, RA and B series stokers. Iron Fireman Mfg. Co., Portland, Ore. 231

IRON FIREMAN MODELS R AND RA STOKERS. Bituminous and non-ash removing anthracite burners. Motor, fan, driving mechanism and relay covered by hood to save cleaning and for sound deadening. Unit entirely self-contained. Resilient mounting for motor. R in two sizes, RA in three. Iron Fireman Mfg. Co., Portland, Ore. 232

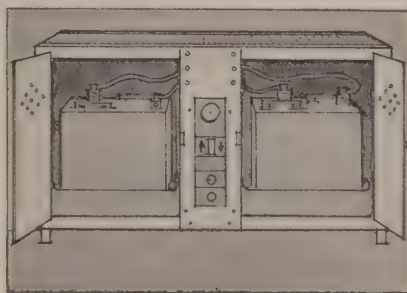
IRON FIREMAN WORM AND DISTRIBUTOR STOKER. A new line, available in sizes equivalent to the present standard 4A, 5 and 5A. Espe-

cially designed for the burning of the low volatile, high coking coals. These require conveying with as little packing as possible, keeping it moving in uniform flow from hopper to the combustion zone. Iron Fireman Mfg. Co., Portland, Ore. 233

WHITTY AUTOMATIC COAL BURNER. For apartment-houses, office buildings, etc. Coal falls from hopper into ram box where it is forced through underfeed retort. Burns cheap bituminous coal in conformity with rigid smoke ordinances. Whitty Mfg. Co., Inc., 216 High Street, Boston, Mass. 234

31. Electrical Work

EXIDE-KEEPAHITE is a new emergency lighting battery system designed to protect limited areas up to 10,000 square feet. Operates automatically and



instantaneously on failure of regular current. Costs less than 50 cents per month to operate. The Electric Storage Battery Co., Allegheny Avenue and 19th Street, Philadelphia, Pa. 235

"ELECTRUNITE" STEEL TUBE CONDUIT. Inside surface knurled, so that fish tape and cables ride the tops of the knobs with less drag. Less effort and time required; longer runs can be pulled. Electric-welded. Steel and Tubes, Inc., Cleveland, Ohio, a unit of Republic Steel Corp. 236

"EVERDUR" ELECTRICAL CONDUIT (E. M. T.) A new non-rusting conduit which has been listed and labelled by Underwriters' Laboratories as "electrical metallic tubing." Made of seamless drawn "Everdur" Metal—a special Anaconda alloy of copper, silicon, and manganese. It combines the durability of copper with the strength of mild steel. Anaconda Copper Mining Co., 25 Broadway, New York, N. Y. 237

G. E. WEATHERPROOF OUTLET. Facilitating the use of outdoor lighting fixtures and appliances. Of brass with cadmium-plated finish, will resist rust and corrosion. Flush plate has solid rubber pad to insure snug fit. When not in use, a rubber-insulated screw cap tightly closes outlet. General Electric Co., Bridgeport, Conn. 238

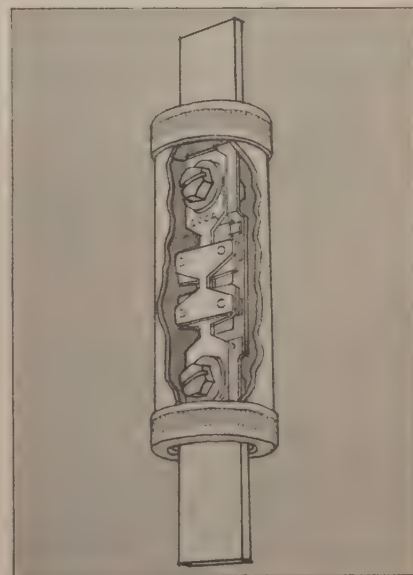
H. & H. TIME-SAVER SWITCHES. For Type C lamp loads. Fit all standard boxes and plates. All bakelite base. Mechanism enclosed and sealed. Twice as much room for quick wiring. Single and combination switches ready-wired in one unit. Hart & Hegeman Division, The Arrow-Hart & Hegeman Electric Co., Hartford, Conn. 239

RUBBER HANDLE SWITCHES. On account of the rough usage to which switches are subjected in factories there always has been more or less trouble due to the breakage of bakelite or composition handles. To overcome this difficulty we have produced a line of switches equipped with live rubber handles. The rubber used is 40 per cent Para and they will maintain their resiliency indefinitely. Harvey Hubbell, Inc., Bridgeport, Conn. 240

AB DE-ION CIRCUIT BREAKER. For circuit protection, a flashless device performing the function heretofore left to carbon circuit breakers or fuses. Nothing to be replaced or renewed; it is simply reclosed, though this cannot be done against an abnormal overload or short. Has a time lag preventing unnecessary tripping on slight, momentary overloads. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 241

HAYES TREADLESS ROAD SWITCH. A magnetically operated element placed in pathway of vehicle, performing same duty as a pushbutton, without physical contact. Performance depends on magnetic influence of the iron or steel in vehicle. For danger signals, approach of customer, etc. Tiffin Electro-Mechanical Co., Tiffin, Ohio. 242

BUSS SUPER-LAG FUSE. Designed to carry without blowing many harmless overloads. Does not increase am-



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perage of fuse, but the attached lag-plates give greater heat capacity and slow down blowing time, giving harmless overloads a chance to clear. Protection is not sacrificed. Prevents needless shut-downs. Bussman Mfg. Co., University at Jefferson, St. Louis, Mo. 243

BUSS "FUSETRON." A device to protect small motors against burn-out due to overloading. Looks like a fuse but is a thermal cut-out to which a fuse is added. Fits standard fuse clips. Made in 125, 250, and 600 volt sizes and in amperages from $\frac{1}{8}$ to 10 amps. Listed as standard by Underwriters. Bussman Mfg. Co., St. Louis, Mo. 244

G. E. AF-1 CIRCUIT BREAKERS. To replace fuses for industrial machines, house service entrance, branch circuits, refrigerators, ranges, etc. Uses a new principle of arc interruption. Cannot be held in closed position under overload. All sizes fit service entrance box. General Electric Co., Schenectady, N. Y. 245

AIR CONDITIONING "FURNACE-STAT." A unit assembly combining control functions necessary for domestic air-conditioning systems. Available in four models, each designed to provide fully automatic operation of heat source in relation to operation of circulating fan, water valve and other accessory units. Provision is made for automatic control of summer cooling. Furnace temperature over-run safety feature standard on all models. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 246

AQUASTAT. New type immersion limit control, for use in hot-water heating system to prevent generation of excessive temperature of water in boiler. Also used in connection with summer-winter hot water supply from oil-burner regularly used for heating. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 247

"GENUINE DETROIT" AIR CONDITIONING CONTROLS. This line includes controls of moisture content, temperature controls, fan controls, electrically operated valves, gas valves, etc. No. 640 electric water valve operates on the thermal motor principle, eliminating all hum frequently encountered with solenoid valves. Detroit Lubricator Company, Detroit, Mich. 248

"GENUINE DETROIT" CABINET THERMOSTAT. For use with room coolers or electric cabinet heaters. The instrument is assembled inside the cabinet, the thermal element being attached by means of flexible tube so that it may be located in the path of the incoming air from the room. Installation and wiring may be accomplished at factory so that the control may be shipped as an integral part of the unit. Outside adjust-

ment button and dial for quick setting of the desired temperature. For 110 or 220 volts up to 1 h. p. Detroit Lubricator Company, Detroit, Mich. 249

"GENUINE DETROIT" CONTROL SWITCH, NO. 250. This line covers controls for temperature and pressure, for use as boiler or furnace limit controls with oil burners, air conditioners, stokers, etc. Models also available for "hold-fire" controls in connection with domestic stokers. Will carry either 110 or 220 volt current with ratings up to 1 h. p. Quickly adjusted for either operating range or differential. Detroit Lubricator Company, Detroit, Mich. 250

"GENUINE DETROIT" LOW WATER FUEL CUT-OFF, NO. 257. For steam boilers fired by oil, gas or stokers. Such installations are so completely automatic that operators may fail to give attention to the waterline, with resultant damage to the boiler. The No. 257 is a positive safeguard and stops the burner when the water level falls to the danger point. For 110 or 220 volt current up to 1 h. p. Detroit Lubricator Company, Detroit, Mich. 251

"GENUINE DETROIT" TEMPERATURE REGULATOR, NO. 425. For damper control on coal-fired boilers and furnaces; a simple, accurate and inexpensive combination of room thermostat and motor unit, employing a simplified two-wire electric system which provides easy installation, and can be supplied with clock switch for night and day control. Noiseless in operation. Detroit Lubricator Company, Detroit, Mich. 252

"GENUINE DETROIT" ZONE HEATING CONTROLS. For forced air or air conditioning systems. Each zone is controlled by an independent thermostat and the complete system is so wired that the heat supply is "on" so long as any one zone requires heat. When all zones are satisfied, the heat supply is closed off. Applicable to oil, gas, or coal-fired heaters or stokers. Detroit Lubricator Company, Detroit, Mich. 253

HUMIDITY CONTROL. A compact room-type instrument actuated by changes in relative humidity of surrounding atmosphere. Human-hair element expanding and contracting operates mercury switch which controls humidifying equipment. Obtainable with or without relative humidity indicator. Differential approximately 2 per cent. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 254

LOW WATER CUTOFF-DUPLEX SWITCH-AUTOMATIC WATER FEEDER. Automatically prevents firing boiler when water is dangerously low. Duplex switch combines functions

of low-water cutoff and automatic control of pressure or vacuum. Either low-water cutoff or duplex switch may be combined with high-pressure solenoid water valve which automatically feeds water when necessary. Available for line or low voltage. Can be installed according to A. S. M. boiler code or in the gauge glass fittings of boiler. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 255

MODULATING TYPE THERMOSTAT. A new and improved room thermostat used with the "Modutrol" System to obtain true and accurate modulating or proportioning electrical control of valves or dampers which control the flow of steam, water, air or refrigerant. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 256

THE "THERMOCHRON." Successor to the thermostat. It combines the functions of an electric-clock thermostat with the timing mechanism which tests the trend of temperature every half hour and if the temperature is dropping (but only then) it turns on the heat, but only long enough to replace the amount of heat which has been lost. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 257

"ELECTROTEMP." A simple multi-point temperature indicator for use at a central regulating point. Measures the temperatures of as many as eight remote points, utilizing the Wheatstone bridge principle. Ordinary bell wire connects the instrument with its remote search coils. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 258

JOHNSON REMOTE READJUSTABLE THERMOSTAT. Designed for automatic variation of temperature setting at the command of a pilot thermostat or manually operated switch at a remote point. Makes it possible to adjust temperature of incoming air to meet demands of conditioned space. Johnson Service Co., 1355 Washington Blvd., Chicago, Ill. 259

31f. Illumination

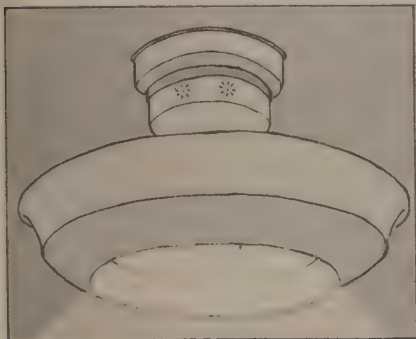
GENERAL ELECTRIC SUNLAMP, "THE BIG MASTER." Utilizing, as ultra-violet source, the Type S-1 Sunlight Mazda. Plated bronze finish adjustable standard or rubber-tired rollers. Includes necessary transformer, automatic timer, new reflector. 500 watts. Also lighter model, "The Big Standard." General Electric Co., Schenectady, N. Y. 260

NEW WESTINGHOUSE NEON LAMPS. Glow lamps for low power consumption, long life, and low brilliancy. Now made in $\frac{1}{2}$ watt, 1 watt, and 2 watts for 110-120 volts with med. screw bases. The $\frac{1}{2}$ watt operates only

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on A. C.; others on either A. C. or D. C. Life, about 3000 hours. Resistance built in the base. Light is a distinctive red neon color. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 261

GENERAL ELECTRIC SUNLAMP. Provides both ordinary room illumination (indirect) and ultra-violet radiation from Sunlight Mazda Lamp. Illustration shows dual purpose ceiling form; also made in dual purpose suspension form for higher ceilings. 20" diam. General Electric Co., 1285 Boston Avenue, Bridgeport, Conn. 262



tion shows dual purpose ceiling form; also made in dual purpose suspension form for higher ceilings. 20" diam. General Electric Co., 1285 Boston Avenue, Bridgeport, Conn. 262

NIGHT LIGHT. A new form of night light has a 10-volt, .035 amp. ivory-coated bulb and miniature screw base. Socket is in series with resistance of 3400 ohms, making possible a connection to regular outlet. Total energy consumption 3 watts. For bedrooms, nurseries, bathrooms. General Electric Co., Schenectady, N. Y. 263

THREE-LIGHT MAZDA LAMP. To fill need for greater flexibility of artificial lighting, particularly in commercial establishments. Requires special socket and special means of control. In two sizes: 150, 200, 350 watts, and 200, 300, 500 watts. General Electric Co., Schenectady, N. Y. 264

GENERAL ELECTRIC INFRA-RED (HEAT) LAMP. Portable standard, with adjustments, using the new Mazda CX tungsten-filament lamp for heat treatments. Highly polished aluminum reflector. 250 watts. Dull black finish. General Electric Co., Schenectady, N. Y. 265

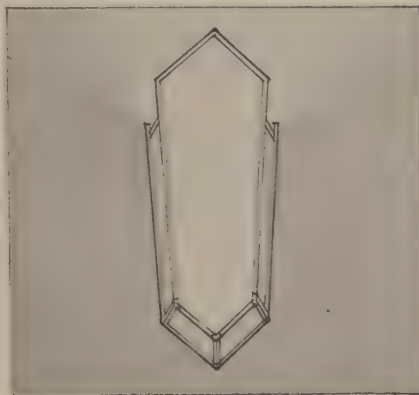
FIXTURE FOR THREE-LIGHT LAMPS. Stem hangers and close-up ceiling units, chromium plated or statuary bronze. The three-light control switch (chain-pull) is inherent in the canopy, leaving but two wires available for connection to lead-ins, and eliminating confusion and expense in mounting. F. W. Wakefield Brass Co., Vermilion, Ohio. 266

GUTH DUAL SUPER-ILLUMINATOR. An indirect unit made of spun aluminum with interchangeable small

color cap inserted between reflectors. Exterior surface of upper cone-shaped reflector is lighted in soft tone color by reflection from lower smaller reflector. Edwin F. Guth Co., Jefferson and Washington Blvd., St. Louis, Mo. 267

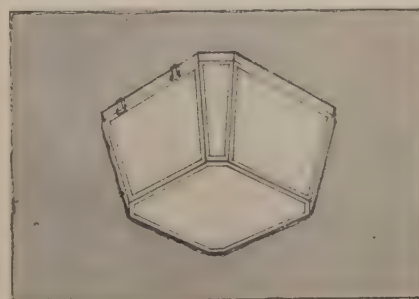
"MODERNE" LIGHTING FIXTURES. A complete new line, available in aluminum, other metals, and in washable finishes. Some of louvered construction, with white indirect and color-lighted louvers. Many forms adaptable to channel, recessed and shuttered effects. Curtis Lighting, Inc., 1123 W. Jackson Boulevard, Chicago, Ill. 268

SIDEWALL POCKET FOR "DOMINO" INSTALLATIONS. For accessory lighting with "Domino" ceiling-pattern, making possible built in light-



ing effects with standardized ceiling fixtures susceptible of infinite variety of pattern arrangements. Particularly suited to store remodelling. F. W. Wakefield Brass Co., Vermilion, Ohio. 269

SQUARE-SHAPED "DOMINO" LIGHTING UNIT. To increase the flexibility and pattern scope of the "Domino" built-on lighting system, a

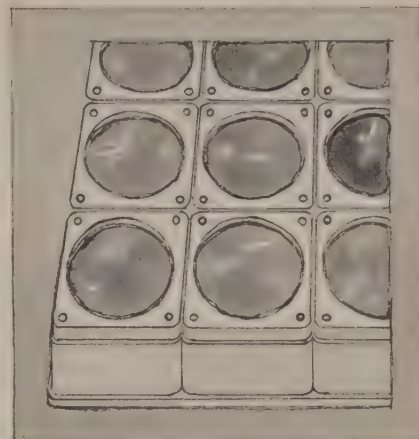


square unit is now available. Used in connection with the pointed oblong units, or provides a conservative unit for small spaces. F. W. Wakefield Brass Co., Vermilion, Ohio. 270

"KLIENLIGHT" NO. 1166B. Incandescent spot-floodlight, entirely new in design principle. Adapted for permanent installations, such as stage lighting

from balcony front. Adjustable framing shutters. Takes 1000 or 1500 watt bi-plane filament lamp. Projects up to 250 ft. Kliegl Bros., 321 W. 50th Street, New York, N. Y. 271

WESTINGHOUSE FOUNTAIN LIGHTS. Underwater "Aqualux" units for illuminating fountains. One will not only illuminate the water in



varied colors, but the beams passing through the water and spray may be used to light a canopy suspended above the basin. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 272

WORLD'S LARGEST INCANDESCENT SEARCHLIGHTS. Many novel and spectacular lighting features for playing streamers of light on buildings and grounds may be achieved with 36" Westinghouse searchlights. Equipped with 36" precision-ground silvered-glass reflectors, they are the largest ever made for use with incandescent electric lamps. Each searchlight is operated with a specially designed 3-kw. incandescent lamp, producing over 21,500,000 candle power in the beam. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 273

KLIEGL DISAPPEARING FOOT-LIGHT, NO. 830. A new type with individual reflectors and colored glass roundels. Furnished in standard 5' lengths for 12 100-watt lamps. Completely wired for independent control of three colors, with automatic cut-off switches and splice box. Kliegl Bros., 321 W. 50th Street, New York, N. Y. 274

31g. Motors and Controllers

"THERMOGUARD" MOTORS. With built-in disc thermostat as protection against overheating in industrial use. Will disconnect from power or give visible or audible signal when unsafe temperature is approached. Can be arranged to restart when cool enough. In standard types. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 275

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"MODUTROL" MOTOR. One of the essential elements of the "Modutrol" System. Operates valves or dampers which control flow of steam, water, air or refrigerant. Obtainable in several types, depending on work to be done. Modulating (*i.e.*, proportioning) type or "off and on" type. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 276

SELF-PROTECTING CAPACITATOR MOTOR. Equipped with small disc-type thermostat. A line of resilient mounted single phase capacitor motors. Extreme quietness. Especially applicable to automatically controlled devices such as air conditioners and refrigerators. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 277

DUAL VENTILATION FOR TOTALLY ENCLOSED MOTORS. Makes possible enclosed motors up to 200 h. p. Internal and external air circulated by fans, transferring heat from internal air to frame and from frame to external air. Suitable for refineries, agitators, hot-oil pumps, gasoline pumps, and other Class I Group D hazardous locations. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 278

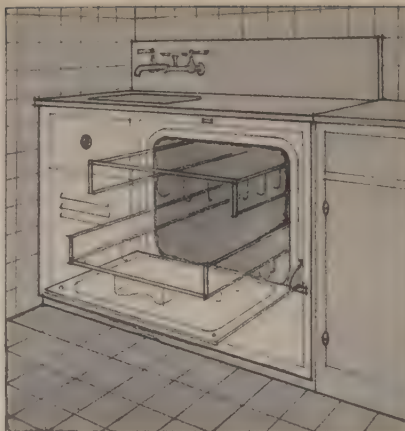
31h. Motor-driven Equipment

GENERAL ELECTRIC MODEL 2G WASHER. Two-tub principle, with efficient activator and spin-basket. Wick oiling. Porcelain enamel inside and out with polished cast aluminum splash rim. Capacity, 17 gals. Pump empties tub in 2 min., while spin-basket is running, and pumps extracted water back to tub. On casters. 320-325 watts. General Electric Co., Schenectady, N. Y. 279

GENERAL ELECTRIC DISH-WASHER-SINK COMBINATION. Central sink, flanked by top-opening dishwasher one side, drainboard other side; whole space below closed by doors for storage cabinets, which can be built, if desired, of millwork to match adjoining work. General Electric Co., Schenectady, N. Y. 280

MODEL F-4 CONOVER PORTABLE ELECTRIC DISHWASHER. Steel cabinet with flat chrome top. Fills from faucet; empties electrically into sink. Capacity, 55 pieces china and glassware plus silver. Self-cleaning porcelain enamel dishtank. Size, 23" square, 35" high. Use for completing electric kitchen which already has modern sink. The Conover Co., 3123 Carroll Avenue, Chicago, Ill. 281

MODEL KC-4 CONOVER ELECTRIC DISHWASHER. Combination electric dishwasher, sink, worktop in



48" steel cabinet. Monel sink and linoleum, monel, or stainless steel worktop. Watertight door on front, no opening through worktop. Installed with top flush with cabinet front or overhanging. Base unit can be installed under almost any worktop. The Conover Co., 3123 Carroll Avenue, Chicago, Ill. 282

GENERAL ELECTRIC QUIET FAN. In oscillating and non-oscillating types. New torpedo form of blade. Special rigid type bearing linings with oil reservoirs. Air delivery, non-oscillating, 600 cu. ft. per min.; oscillating, 550 cu. ft. Tilting adjustment. General Electric Co., Schenectady, N. Y. 283

SILENT-BASE QUIET VENTILATING FAN. To remove the last traces of motor hum, which normally is picked up and magnified by the fan base and foundations, the "Silent Floating Base" was built, tested by audiometer and proved to be extremely quiet in operation. This development permanently overcomes the problem of fan noise on installations. Buffalo Forge Co., Buffalo, N. Y. 284

ELECTRIC RADIATOR VALVE. New type motor-driven, low-voltage, for installation on individual radiator and controlled by room thermostat. Available with dual control switch, permitting operation of several valves in multiple. May be manually operated in event of current failure. Single-seated, packless construction. Requires no lubrication and is practically noiseless. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. 285

31i. Signalling and Communicating Systems

CHIME SYSTEMS. Westminster, hour strike, Angelus, and similar chimes sounded by amplification. Unique in that no large bells are required. Chime bars with magnetic pick-up device attached are sounded by special timing device. International-Philco Amplifying System amplifies the chimes until

they are suitable for any installation regardless of size. Tone not affected by climatic conditions. International Business Machines Corp., 270 Broadway, New York, N. Y. 286

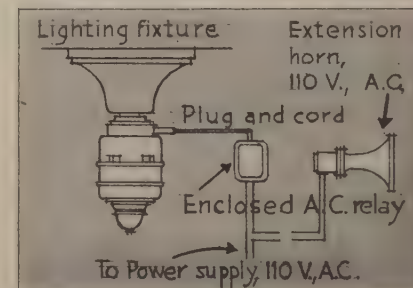
COMBINED CLOCK AND SPEAKER. Single unit serves the dual purpose of a time indicator and loud speaker. Available in two types, round metal and square wood, for either surface or semi-flush mounting. Properly protected openings are placed at the sides and front of the case to emit the sound. Particularly useful in school remodeling. International Business Machines Corp., 270 Broadway, New York, N. Y. 287

TIME FLASHER. Indicates time in electric lights (any color) with changing figures instead of hands and dial. In sizes from 7" to 20" high. For interior use only—not easily readable in full daylight. Operates on impulse principle from master clock. International Business Machines Corp., 270 Broadway, New York, N. Y. 288

WORLD CLOCK. Indicates the time in all zones. Consists of a stationary outer dial with various city names placed according to their time distances from each other. 12 A.M. hours and 12 P.M. hours are positioned on an inner dial revolving counter-clockwise. International Business Machines Corp., 270 Broadway, New York, N. Y. 289

A D T GENERAL FIRE ALARM AND PRE-SIGNAL SYSTEMS. New systems designed to sound a coded alarm on local bells throughout the building. New de luxe type fire-alarm box conforms with fine interiors. All equipment listed as standard by Underwriters. American District Telegraph Co., 155 Sixth Avenue, New York, N. Y. 290

GAMEWELL "VITALARM" SIGNAL. A new automatic fire-alarm unit that can be plugged into any standard electric light outlet on A. C. Used as a



fire alarm in itself, or can be hooked up in system form. Functions on the rate of rise, whether temperature is low or high. The Gamewell Co., Newton, Mass. 291

"PROTECTOLOCK." Saw-proof lock for mercantile establishments, designed

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for use in conjunction with interlocking bolts or doors and windows. "Protectolock" cannot be locked until all means of entrance are bolted. Electrically operated. Smaller than conventional lock. International Business Machines Corp., 270 Broadway, New York, N. Y. 292

BURGLAR ALARM. Used in conjunction with International "Recordolock" or "Protectolock." Cannot lock main entrance without turning on the alarm. If entrance is attempted through any door or window equipped with interlocking bolts, the alarm (bell or horn installed on outside of building) will be sounded until turned off by authorized party. International Business Machines Corp., 270 Broadway, New York, N. Y. 293

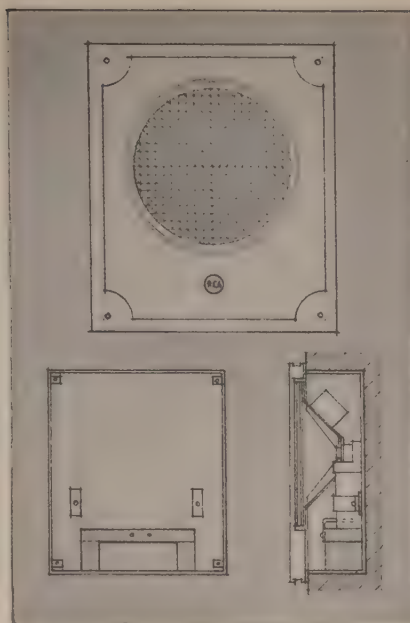
INTERLOCKING DEAD LOCK. Key-operated saw-proof interlocking bolt, for use on storerooms, in conjunction with an International "Recordolock." Prevents store-rooms with private entrances from being unlocked from the outside until the "Recordolock" of the main store is first unlocked, thus leaving a printed record. May be installed on any door. International Business Machines Corp., 270 Broadway, New York, N. Y. 294

SYNCHRONOUS MOTOR PROGRAM DEVICE. Controls the starting and dismissing of classes in small and medium size educational institutions. Complete self-contained unit, for operating signals (bells, buzzers, horns) on one or two circuits and with sufficient flexibility to permit complicated schedules. Available with the exclusive International all-metal programme machine, or with paper-tape machine. International Business Machines Corp., 270 Broadway, New York, N. Y. 295

INTERNATIONAL-PHILCO CENTRAL CONTROL RADIO. Provides for the controlled amplification and distribution of radio, phonograph, and microphone programmes from one central point. Furnished in a wide range of models to meet various needs. Control equipment housed in attractive harmonizing cabinets, as easy to operate as the home type radio. Faithful reproduction of sound is guaranteed. International Business Machines Corp., 270 Broadway, New York, N. Y. 296

RCA VICTOR "ANTENAPLEX" SYSTEM. Providing a single outside antenna to operate a maximum of 20 radio antennae and ground outlets, with the necessary transformers, terminet, cabloy, outlets, etc. Maximum cabloy length of 300 feet. RCA Victor Co., Inc., Camden, N. J. 297

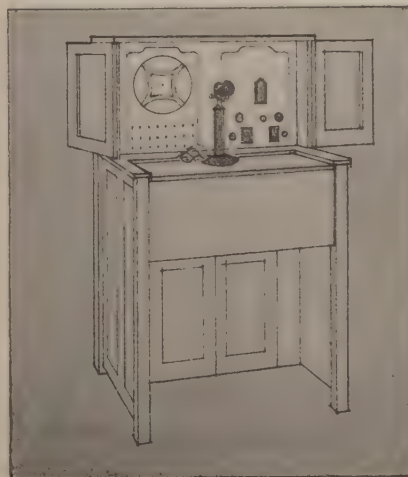
PERMANENT FIELD DYNAMIC LOUDSPEAKER, MODEL AF-6131. Aluminum wall box, loudspeaker mechanism, and flush wall plaque in matched



Oriental walnut. This unit requires no connection to any power line and need not be open to air space at rear. RCA Victor Co., Inc., Camden, N. J. 298

RCA VICTOR CENTRALIZED RADIO PANEL, MODEL AF-6505-A. For the small hotel or school. Super-heterodyne receiver with 10-watt power amplifier incorporated, with provision for doubling this. Distribution jacks can be furnished for segregation. Transfers from radio to microphone or electric phonograph input. Dynamic loudspeaker incorporated for monitoring. RCA Victor Co., Inc., Camden, N. J. 299

RCA VICTOR CENTRALIZED RADIO CABINET. Contains all necessary equipment for complete control and operation of a centralized radio system. Super-heterodyne receiver, with amplifier, two-speed phonograph unit, monitoring loudspeaker, microphone plug, and up to 48 key switches. Closes



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under lock. Height 54", width 28 3/4", depth 30". RCA Victor Co., Inc., Camden, N. J. 300

RCA VICTOR CENTRALIZED RADIO PANEL MODEL ER-1240-A2 Designed for use with RCA Victor centralized radio distribution system, to operate a number of loud-speakers located throughout buildings such as hotels, schools, hospitals. Four different volume levels. Transfers from radio program to phonograph or microphone input. Jack strip of 24 jacks for monitoring and load segregation. Height, 6' 11", width 20 1/8", depth 18 3/8". RCA Victor Co., Inc., Camden, N. J. 301

TWO-PROGRAM RCA VICTOR CENTRALIZED RADIO PANEL, MODEL AF-6722. Provides for complete control and operation of a four-program system. Two receivers, two 10-watt power amplifiers, controls and monitoring loud-speaker are mounted on each panel. Transfers from radio to microphone or phonograph input. Height 69 7/8", width 20 1/8", depth 17". RCA Victor Co., Inc., Camden, N. J. 302

RCA VICTOR PILLOWETTE, MODEL AF-6220. Acoustically calculated sound chamber inside of light green soft rubber, for patient or invalid use. Will not disturb adjacent persons even though but a few feet away. Unbreakable and foolproof. Approved by hospital authorities. RCA Victor Co., Inc., Camden, N. J. 303

WALL MOUNTING LOUDSPEAKER PLAQUE, MODEL AF-6134. For use with RCA Victor centralized radio distributor system, in schools, hospitals, etc. Equipped with lock switch. Dark walnut faced with Oriental walnut veneer. Steel wall box, 10" x 12" x 4". RCA Victor Co., Inc., Camden, N. J. 304

31k. Electric Heating and Cooking Apparatus

CHASE-ERSKINE ELECTRIC RADIATORS. Portable heating unit. Electric heating unit sealed in a copper tube, radiating through copper fins. In four sizes, each contained in neat attractive cabinet. Plug into electric outlet. Chase Brass & Copper Co., Erskine Radiator Division, Waterbury, Conn. 305

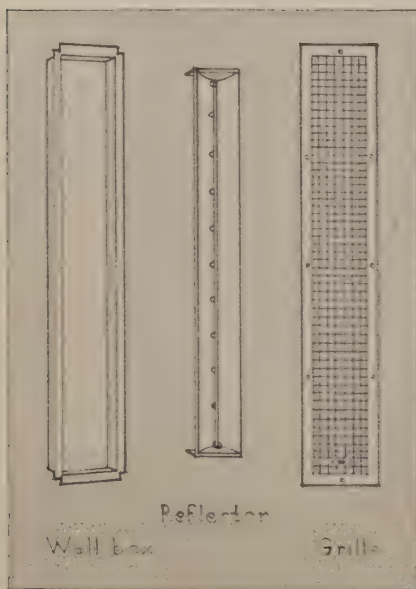
GENERAL ELECTRIC "MODERNETTE" RANGE. Occupies floor space of 18" x 22"; height, 46 7/8". Approved by Underwriters for built-in construction. Originally designed for G. E. 60" kitchenette, it is available for separate installation. Oven, 14" x 14" x 16". Three plates. General Electric Co., Schenectady, N. Y. 306

GENERAL ELECTRIC 60-IN. KITCHENETTE. Designed for apartment-house efficiency kitchens; 22½" deep. Has Model HE-3K G. E. refrigerator, 3 net cu. ft. capacity; 6.8 sq.



ft. shelf area. Range is Model G10 B8 as described above. Sink and storage space. Illustration shows it recessed, with supplementary cupboards above, and folding doors. General Electric Co., Schenectady, N. Y. 307

THERMADOR BATHROOM ELECTRIC HEATER. Provides switch-controlled radiant heat from flush wall grille 9" x 48" high. Grille is of steel,



porcelain-enamelled in colors. Reflector of chromium-plated steel. Wall box of steel, black enamelled, with knockouts. For 115 volts, 1650 watts; for 230 volts, 1650 and 2000 watts. Thermador Electrical Mfg. Co., 116 Llewellyn Street, Los Angeles, Calif. 308

PROMETHEUS ELECTRIC WATERLESS STEAM TABLE. For the efficient diet kitchen. Each container individually heated, without

water or steam. Independent lower compartments heavily cork-insulated. Stainless steel top deck with front oak serving board, rear Monel metal serving board. A 2-burner hot plate or steel top griddle may be inserted for small special orders. The Prometheus Electric Corp., 401 W. 13th Street, New York, N. Y. 309

"TOLEDOAN" ELECTRIC STOVE. 45" x 23", 33½" high. Four full-size burners; recessed switch panel; appliance receptacle; clock plug. Oven 16" x 17½" x 14" with upper and lower burners. Ivory porcelain enamel or marbled finish. The Standard Electric Stove Co., Toledo, Ohio. 310

MODEL 765 ELECTRIC STOVE. For larger homes. Choice of plate equipment, with gas burners or all electric. Monel-lined oven, 24" x 21" x 14"; small aluminum-lined oven, 18" x 18" x 7". Temperature control. Timer plug. Floor space, 59" x 24¼"; 52½" high, 33¾" to cooking top. The Standard Electric Stove Co., Toledo, Ohio. 311

WESTINGHOUSE ELECTRIC STEAM GENERATORS. Useful where steam is wanted in limited quantities and where it has been found too costly to run steam lines to remote places where steam is desired. A complete line of generators with ratings ranging from 2 to 240 kw. are available. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 312

32. Refrigeration

GENERAL ELECTRIC MODEL HE-5 REFRIGERATOR. Flat-top type, with 9.5 sq. ft. shelf area. Baked Glyptol enamel exterior, porcelain interior. Ice-making capacity, 6¾ lbs. or 60 ice cubes. Semi-concealed hardware chrome finish. Open latch with slight push of elbow or side. General Electric Co., Schenectady, N. Y. 313

GENERAL ELECTRIC MODEL HT-70 REFRIGERATOR. Monitor top, porcelain exterior and interior; 12.3 sq. ft. shelf area; ice-making capacity, 4 trays, or 9 lbs., 84 ice cubes. Door opened by foot pedal, lighting interior. Highly polished chrome trim. General Electric Co., Schenectady, N. Y. 314

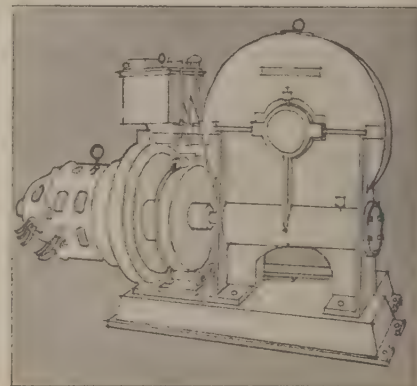
YORK UTILITY AIR COOLER. Used for either human comfort or industrial air cooling. Adapted to small tonnage requirements, applicable to small offices and small cold storage rooms. Unit adapted to ammonia brine or water as refrigerant. Casing constructed of die-pressed steel. Front air outlet fitted with adjustable louvers which remove moisture from air leaving cooling coils. York Ice Machinery Corp., York, Pa. 315

"DECALORATOR." A steam vacuum refrigeration unit. Operation is based upon the fact that water under high vacuum will vaporize at low temperatures. A range of capacity, measured in thousands of B. t. u. per hour of cooling capacity from 24 to 4800. Can be furnished in either vertical or horizontal design. American Blower Corp., 6000 Russell Street, Detroit, Mich. 316

33. Elevators, Dumbwaiters and Accessories

WARNER ELECTRIC RESIDENCE ELEVATOR. Hydraulic plunger type, for one-floor rise. Driving mechanism in basement operating a vertical threaded steel column. No ropes, chains or cables. Car travels on regular elevator side guides. A loaded car will not coast, even should the brake fail. The Warner Elevator Mfg. Co., Cincinnati, Ohio. 317

KIMBALL STRAIGHT LINE DRIVE. Motor and elevator machinery designed to bolt together on machined faces. Secures factory precision alignment instead of the field mechanic's version of alignment. After field repairs the precise alignment is automatically restored. Eliminates vibration and human fallibility. Kimball Bros. Co., Council Bluffs, Iowa. 318

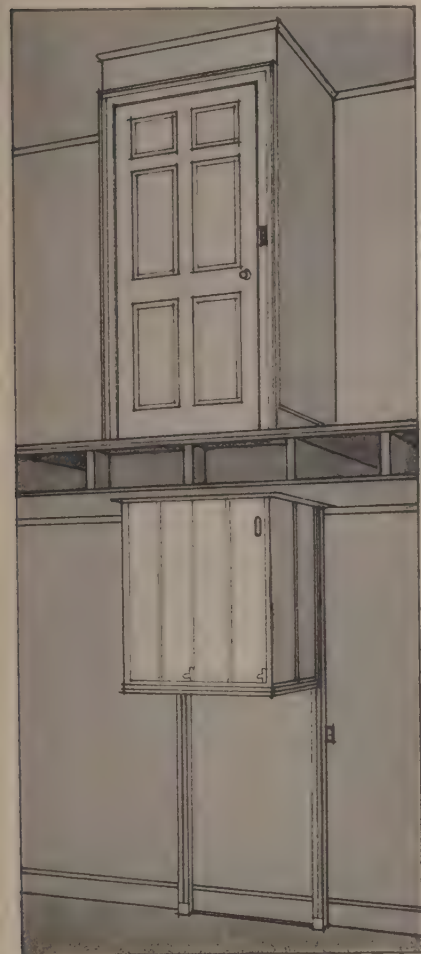


WESTINGHOUSE SIDEWALK LIFT. Of unit construction of the worm-gear type, driving, through a spur gear reduction, a drum shaft mounted on bearings supported from the rails. The drum shaft carries two drums, one adjacent to each rail. The motor is flange-mounted to the machine. Westinghouse Electric Elevator Co., 1500 No. Branch Street, Chicago, Ill. 319

SEDGWICK "ROTO-WAITER." For full automatic electric dumbwaiter service between two floors. No space needed above top of car at upper landing. Simplified and low-cost mechanism through steel roller chain operating in one direction only. Sedgwick Machine Works, 150 W. 15th Street, New York, N. Y. 320

« ARCHITECTURE »

SHEPARD HOMELIFT. Completely automatic safety elevator, operating from the regular lighting circuit. Easily installed in existing homes. Requires



only an opening, cab size, between first and second floors; above, is enclosed in its own closet. Standard model, 30" x 30" platform, lift of over 350 pounds. Special model, 36" x 36". The Shepard Elevator Co., Inc., 2413 Colerain Avenue, Cincinnati, Ohio. 321

UNDER-THE-COUNTER DUMB-WAITER. In two standard sizes with special shelving to meet needs. Carries 300 lbs. and is automatic in electric operation. Self-supporting; takes little space on either floor, and requires no pit. Can be easily installed, and moved if necessary. Otis Elevator Co., New York, N. Y. 322

WARNER ELECTRIC DUMB-WAITER. Undercounter type, with car raised and lowered by a vertical steel column. Automatic controls by pushbuttons at each landing. Driving mechanism in shaft area below lower landing. Will lift 300 lbs. of merchandise. In two standard sizes to take care of varying requirements of stores, restaurants, etc. The Warner Elevator Mfg. Co., Cincinnati, Ohio. 323

WESTINGHOUSE DUMBWAITER. Dumbwaiter machine is of the traction type, with worm of forged steel and gear of phosphor bronze, which run in an oil-tight housing, the thrust being taken up by self-aligning bearings. The gear shaft is mounted in roller bearings. Motor is flanged-mounted to the machine. Westinghouse Electric Elevator Co., 1500 No. Branch Street, Chicago, Ill. 324

WHITCO SIDEWALK ELEVATORS. Counterbalanced type, weight of car and, if desired, portion of load compensated for. Hand power, saving installation and maintenance costs. All sizes and capacities to suit various conditions. Vincent Whitney Co., 130 Tenth Street, San Francisco, Calif. 325

WESTINGHOUSE ELECTRIC STAIRWAY. Thoroughly modern, yet based on experience in design, manufacture, and installation, and where safety is of paramount importance and quietness a feature not to be overlooked. Westinghouse Electric Elevator Co., 1500 No. Branch Street, Chicago, Ill. 326

WESTINGHOUSE FAN AND LIGHT FIXTURE. Especially designed for elevator cabs. The light fixture is of cast bronze or aluminum, suitably combined with the fan, which will displace 900 cu. ft. of air per minute, is mounted on resilient rubber mountings, and is noiseless. Westinghouse Electric Elevator Co., 1500 No. Branch Street, Chicago, Ill. 327

MODIFIED COLLECTIVE CONTROL FOR PUSH-BUTTON ELEVATORS. One pressure of a hall button assures tenant of service in his turn. Elevator, instead of answering but one call each trip, responds promptly to each registered call. Change from old system made in a few hours. Otis Elevator Co., New York, N. Y. 328

WESTINGHOUSE CABLE EQUALIZER. Consists of a system of levers to which the cables are attached, the ratio of the levers being such that there is an equal distribution of load on each cable. The pivot points have bronze bushings which increase the efficiency. Westinghouse Electric Elevator Co., 1500 No. Branch Street, Chicago, Ill. 329

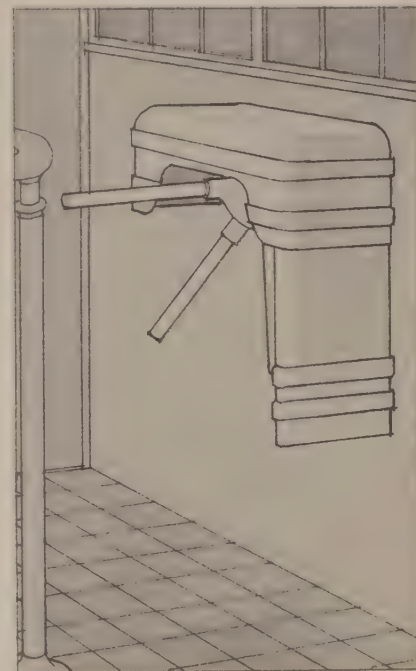
34. Power Plant

HIGH-SPEED AIR-CONDITIONING COMPRESSOR. Advancing beyond the belt and gear driving at 100-500 r. p. m. to a reciprocating type operated at two or three times this speed. Gain in compactness; light weight; quiet action; smaller and cheaper bearings, crankshaft and other parts. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. 330

35. Equipment

EMPIRE STATE MODEL PASSIMETER. Four-arm horizontal pivoted type in two forms: "Auto-Lock" and "Speed-o-Matic." First requires operator release by foot treadle; second is unlocked by pressure of patron but can be instantly locked by treadle. Hydraulic silencing. Tamper-proof registration. Aluminum arms and head. Perey Turnstile Co., 101 Park Avenue, New York, N. Y. 331

"KOMPAK" PASSIMETER. For space saving where entrance and exit space is limited. Used throughout Century of Progress Exposition. Lessens



space needed for revolving arms; no need to cut into wall of ticket booth. Hung on wall or on its own pedestal. Perey Turnstile Co., 101 Park Avenue, New York, N. Y. 332

WECO SWINGING-LEAF BLACKBOARD. Has four leaves of double-surfaced "Old Reliable Hyloplate Blackboard," 3' x 3 1/2'—84 sq. ft. of writing surface in a very compact space. Patented features provide removability of each leaf or entire unit for use in other rooms—also patented locking device. Weber Costello Co., Chicago Heights, Ill. 333

"SMALL HOUSE" UNITS, KITCHEN CABINETS. New additions to The White House Line, of furniture steel, joints electrically welded, baked enamel finish, chromium knobs and hinges, counters of monel metal, stainless steel, or linoleum. Colors, white, ivory, apricot, Nile green, jade green, and gray. Janes & Kirtland, Inc., 101 Park Avenue, New York, N. Y. 334

« ARCHITECTURE »

LIQUID-ZAHM BEER COOLING AND CONTROLLING SYSTEM. Instead of beer passing through an iced copper coil, it is lifted by gas pressure from barrel into a silver-lined vertical 3-gal. tank, in which a silver-plated ball float holds pressure to uniform $8\frac{1}{2}$ lbs. Every draw has same body and collar. Economy of time and beer. Liquid Carbonic Corp., Chicago, Ill. 335

STAINLESS METAL WORK BAR. In standard 6', 8' and 10' lengths, as well as specials to order. Stainless shelf for pony glasses secured to splash back above sink and drainboard. Insulated cabinet for milk, lemon, lime storage, and uninsulated storage space for additional bottle goods. The Edwards Mfg. Co., Eggleston Avenue and Fourth Street, Cincinnati, Ohio. 336

GENERAL ELECTRIC HOTPLATE IRONER, MODEL F. Frictionless type, with even pressure and regulated heat. Easier to operate than hand iron or rotary ironer. Folds up easily into a useful kitchen table. Thermostatic heat control on each half of shoe. Presses coats, suits, dresses, does pleating. Draws 1320 watts. General Electric Co., Schenectady, N. Y. 337

GENERAL ELECTRIC LAUNDRY CABINET DRYER. Entire contents of an 8-lb. washer can be dried ready for ironing in 60 min. A compact cabinet with rod hangers, using fresh warm air, not baking-hot heat. General Electric Co., Schenectady, N. Y. 338

J.-M. UNIT OFFICE CONSTRUCTION. Asphalt tile floors, sound-absorbing ceilings, and fireproof Transite partitions provide permanence in appearance; ready accessibility to wiring and ducts; quick, cleanly, and economical erection; and relocation with full salvage. Johns-Manville, 22 E. 40th Street, New York, N. Y. 339

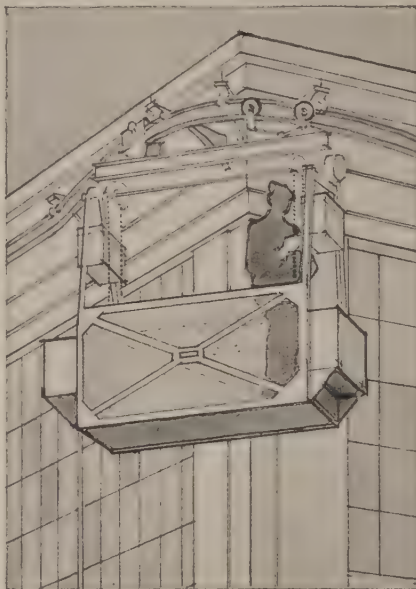
DINSELPEL AUTOMATIC DAMPER FOR TUBE LINES. A power-saving device which automatically opens when carriers are inserted, and closes when carriers arrive at receiving terminal. No intricate parts; adjustment simple—a direct-action damper controlled by air flow. Peter Clark, Inc., 534 W. 30th Street, New York, N. Y. 340

LAMSON CASH CARRIER FOR RETAIL TUBE SYSTEMS. Somewhat longer than old-style, with opening much larger, permitting insertion of average sales checks without cross-folding or crumpling. Four colors to speed action. With recessed head (YD-5710) and with solid head (YD-5700). The Lamson Co., Syracuse, N. Y. 341

TASCO SLIDE RULE. Disc-type, $2\frac{3}{4}$ " diam. for vest pocket. Scales etched with black lines on a nickel silver plate. Length of multiplication-division

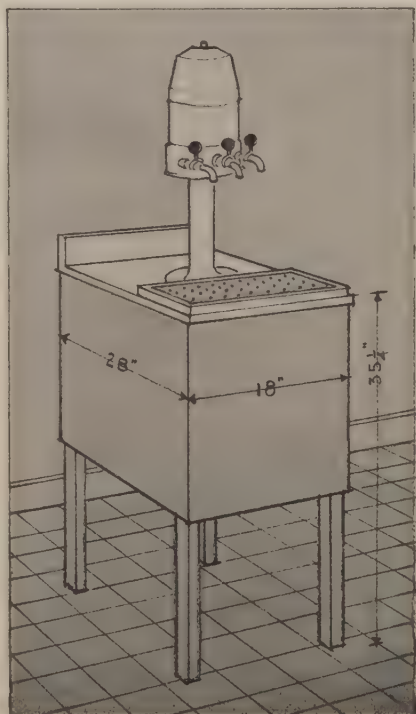
scale, 6.3" as against 5" on "A" scale of the regular 10" slide rule. Reading is never off end of scale. Tavella Sales Co., 25 W. Broadway, New York, N. Y. 342

STEELBEAM TRACK SYSTEM Track and car for the safe and economical washing of factory windows where there is a large area to be kept clean.



Car is raised or lowered with ease to any desired position, including the rounding of corners. Richard Wilcox Mfg. Co., Aurora, Ill. 343

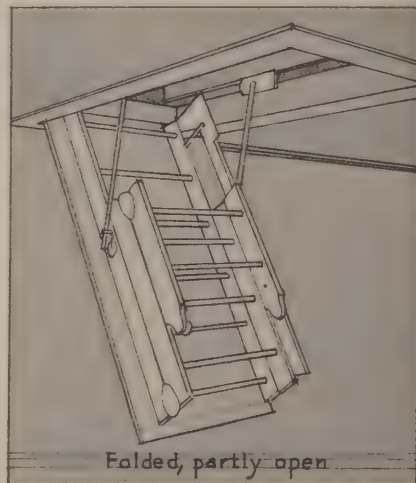
BRUNSWICK TEMPRITE TAP-COOLER STAND. An 18" dispensing unit for lunchrooms, restaurants, small



clubs. Draws from storage compartment in basement. Also over-counter type. Used where a proper size compressor is now in use. Tank in stand keeps compressor from starting and stopping at short intervals. The Brunswick Balke-Collender Co., 623 So. Wabash Avenue, Chicago, Ill. 344

"KERNERATOR COMMERCIAL." A new and compact fuel-burning incinerator. It occupies a floor space of 39" x 28", is easily installed, and burns gas or coal. Handles green garbage from large restaurants, cafeterias, hospitals. Kerner Incinerator Co., 3707 No. Richards Street, Milwaukee, Wis. 345

MARCO FOLDING STAIRWAY, MODEL 48. A compact attic stairway, requiring no rafter clearance, no resting space on attic floor. Folds over the



panel within ceiling opening. Straight coil springs hold balance in any position. Panel size, 28" x 60", for ceiling heights up to 9' 10". (Model 66 for heights up to 12'.) The Marschke Co., 551 University Avenue, St. Paul, Minn. 346

HARTSHORN WASHABLE DIANA CLOTH FOR WINDOW SHADES. Manufactured on a high-count fabric, impregnated with pyroxylin. It is sun-proof, waterproof, washable. Surface is smooth, glossy, satin-like, preserving the cloth against drying effect of the sun. Stewart Hartshorn Co., 250 Fifth Avenue, New York, N. Y. 347

HARTSHORN NEW SELF-ACTING SPRING WINDOW SHADE ROLLERS. These are made from seasoned, straight-grained American white pine. New patented mechanical features make it smooth-running, quiet, and durable. Stewart Hartshorn Co., 250 Fifth Avenue, New York, N. Y. 348

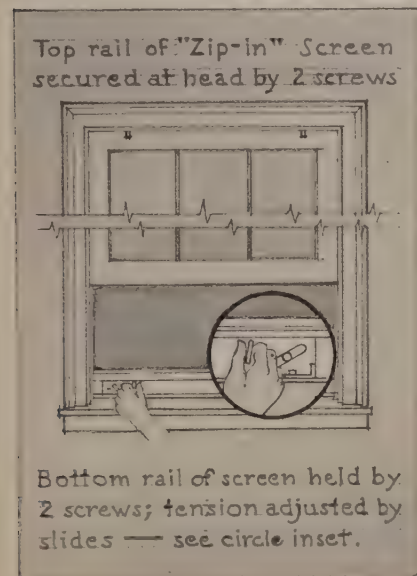
WILSON VENETIAN AWNING NO. 7. Wooden slats, lacquered, supported on either cloth tape or aluminum tape. Made for any size opening up to 40 sq. ft. in area. Stock sizes, finished dark



green. Bracket rods hold lower edge out like awning; slats open or flat like inside blinds. The J. S. Wilson Corp., 11 E. 38th Street, New York, N. Y. 349

VENETIAN BLIND. Tilting and operating mechanism all enclosed in $1\frac{3}{8}$ " metal housing, eliminating tilting rail and all exposed brackets. Perfect bundling, with no light line above. Unusual color combinations. Rolscreen Co., Pella, Iowa. 350

"ZIP-IN" FLY SCREENS are frameless, of bronze, for use in double-hung windows, covering entire opening. Easily installed, requiring only four screws.



Packed in individual fibre boxes, 3" square, taking small storage space. Seasonal washing easily accomplished. Made in stock sizes to fit all standard openings. Priced to supply all-metal construction at cost of wood-frame screens. The Cincinnati Fly Screen Co., Cincinnati, Ohio. 351

36. Construction Plant

AIRCO DAVIS BOURNOVILLE REGULATOR. Two-stage reduction

oxygen and acetylene regulators which automatically maintain pressure and flow without fluctuation throughout cylinder discharge. Counterbalancing effect of two-stage reduction design assures constant volume of gas to torch. Air Reduction Sales Co., Lincoln Bldg., New York, N. Y. 352

AIRCO PIPE CUTTING AND BEVELLING MACHINE. Portable equipment for cutting off and bevelling pipe to desired angle for welding. Designed for oxyacetylene cutting of wrought iron, steel, and galvanized pipe from 4" to 30". Cuts and bevells in one operation. Air Reduction Sales Co., Lincoln Bldg., New York, N. Y. 353

RAWLDRILL. Three-point masonry drill of high-grade tool steel. Permits sharpening on any grinding wheel instead of reforging. Maintains true diameter after continual resharpening. Centres at first blow. Enlarged handle. The Rawlplug Co., Inc., 98 Lafayette Street, New York, N. Y. 354

37. Insulation

BAR-RAY X-RAY PROTECTIVE BUILDING SPECIALTIES. Materials and methods for construction where X-ray equipment or radium is used: lead-insulated partition blocks, lead-insulated lath, lead-insulated wainscot, lead-insulated doors, lead-covered nails, prepared barium plaster, operators' window frames of lead, X-ray resisting glass, X-ray resisting paint, lead-insulated film transfer cabinets, and other special devices. Bar-Ray Products, Inc., 209 25th Street, Brooklyn, N. Y. 355

INSULATING SHEETROCK. A $\frac{3}{8}$ " gypsum board with same surface for decoration as the standard $\frac{1}{2}$ " sheetrock, but backed up with a thin sheet of bright metal. Insulation against summer heat through the newly recognized principle of reflection; retains winter heat by reducing its flow. United States Gypsum Co., 300 W. Adams Street, Chicago, Ill. 356

"ALFOL" INSULATION. The use of aluminum foil between studs, joists, rafters resists transfer of heat outward in winter, inward in summer. Weighs $\frac{1}{4}$ oz. per board foot. Fireproof, damp-proof, vermin-proof, dustless. Alfol Insulation Co., Inc., Chrysler Bldg., New York, N. Y. 357

MASONITE INSULATING BATTS. A wood product built up of 70 layers to a thickness of $3\frac{5}{8}$ ". Weighs 1.16 lbs. per cu. ft. Highly fire and water resistant. Batts fill spaces between studs, with conductivity of .076. Masonite Corp., 111 W. Washington Street, Chicago, Ill. 358

IMPROVED BALSAM-WOOL. This product has been improved by sealing edges to keep out moisture, and flanging edges for faster application. Now made also in "Wall-thick" form—2 heavy layers of Balsam-Wool with 4 sheets waterproof asphalt paper—flanged. Meets rigid requirements of air conditioning equipment. Wood Conversion Co., Cloquet, Minn. 359

EAGLE HOME INSULATION. A lightweight fluffy fireproof material for between-studs or between-rafters use. Four inches thickness keeps interiors as much as 15° below outside temperature on hottest days, and reduces heat loss and fuel bills in winter. The Eagle-Picher Lead Co., Temple Bar Bldg., Cincinnati, Ohio. 360

"EAGLE 66" INSULATION. Plastic insulation of the asbestos cement type, over which material it has the advantage of higher insulating value for same thickness. The Eagle-Picher Lead Co., Temple Bar Bldg., Cincinnati, Ohio. 361

SOUND-INSULATING BASE FOR MOTORS. Floating members are suspended on special insulating material, so enclosed and mounted that long life and freedom from damage result. Motor is mounted as on standard sliding base, and belt tension and motor alignment maintained in the ordinary manner. General Electric Co., Schenectady, N. Y. 362

"TREM-BAR" RESILIENT MACHINE MOUNTING. To prevent transmission of noise and vibration from machines. A rigid platform supported on steel springs. Mounted on wall, floor or ceiling. May be used also to isolate sensitive and delicate apparatus. Lasting effectiveness. United States Gypsum Co., 300 W. Adams Street, Chicago, Ill. 363

39. Acoustics

"AKOUSTOLITH." A masonry material of high sound absorption. This material, as backed up with Guastavino construction, forms a shell-like masonry dome of flexibility and freedom from shrinkage cracks generally found when artificial stone is set against metal lath, or used with a hung ceiling of steel. R. Guastavino Co., 500 Fifth Avenue, New York, N. Y. 364

"ROCKWALL" ACOUSTICAL PLASTER. Smooth-working, easily applied, hard, durable. Requires no stippling or other surface manipulation. Gray-white and several tints. U. S. Bureau of Standards test, 47 per cent absorption at 512 cycles for $\frac{1}{2}$ " application over gypsum base. Atlantic Gypsum Products Co., Acoustical Division, 60 E. 42d Street, New York, N. Y. 365

« ARCHITECTURE »

GYPSTEEL ACOUSTICAL PLANK.
A modification of the original Gypsteel Senior Plank, embodying a structural roof deck with a ceiling surface having high sound-absorbing properties. Steel bound, t. & g., 2" x 15" x 10'. Laid with random joints, for spans up to 7'. Choice of colors. Structural Gypsum Corp., 535 Fifth Avenue, New York, N. Y. 366

"NU-WOOD" BEVEL-LAP PLANK.
Companion product to the "Nu-Wood" Bevel-lap Tile. Beaded bevel, and plain bevel, in uniform or random widths in standard color or in variegated shades from light tan to rich wood brown. Has high acoustical and heat insulation efficiency. Wood Conversion Co., Cloquet, Minn. 367

U. S. G. SOUND CONTROL SERVICE. A consulting and design service covering the whole range of architectural acoustics. Results obtained by installing part of or all the U. S. G. System of Sound Insulation, with either tile or plaster, depending upon requirements. United States Gypsum Co., 300 W. Adams Street, Chicago, Ill. 368



PONTE VECCHIO, FLORENCE

From the drawing (actual size) in pencil by Malcolm P. Cameron

« ARCHITECTURE »



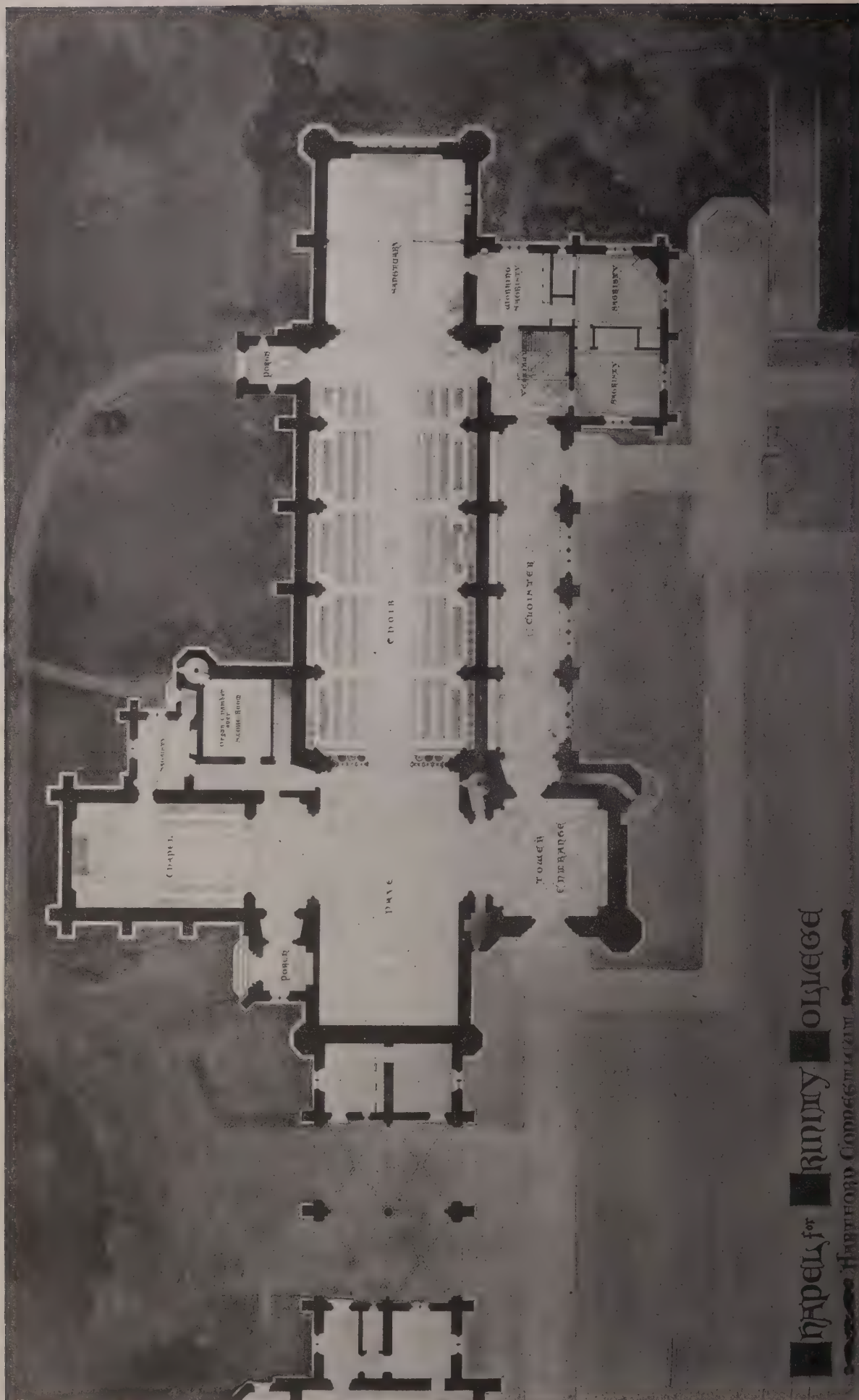
Photographs by William G. Dudley

Indiana limestone has been used for the chapel, with a roof of slate. There will be noticed, at the base of the tower, an outdoor pulpit

FROHMAN, ROBB & LITTLE, ARCHITECTS

Chapel of Trinity College, Hartford, Conn.

◀ ARCHITECTURE ▶



Appell for PRIMY COLLEGE
HARVARD COLLEGE

The plan is based upon that of the English college chapels, where the students sit facing each other across the choir. To the west of this is a space, here called the nave, to be occupied by neighbors attending services, and by relatives and friends at commencement time. The little chapel to the north of the nave is for smaller services, and there is still another chapel in the crypt below the sanctuary



There are a few stained-glass windows already in place, which have been made by Earl E. Sanborn. The unfinished brickwork wall on the lower part of the west front indicates provision for a porte cochère which some day will give an entrance to the campus lying to the south. To the west of this is one wing of an existing college building in which is located the office of the president and those of other executives

« ARCHITECTURE »

*A drawing by E.
Donald Robb,
made to show the
choir as seen from
the nave. Of the
choir stalls, only
a few of the ends
have been carved
at the present time*

CHAPEL FOR TRINITY COLLEGE HARTFORD CONN.
DESIGNED BY E. DONALD ROBB & LITTLE ASSOCIATED ARCHITECTS BOSTON & WASHINGTON D.C.



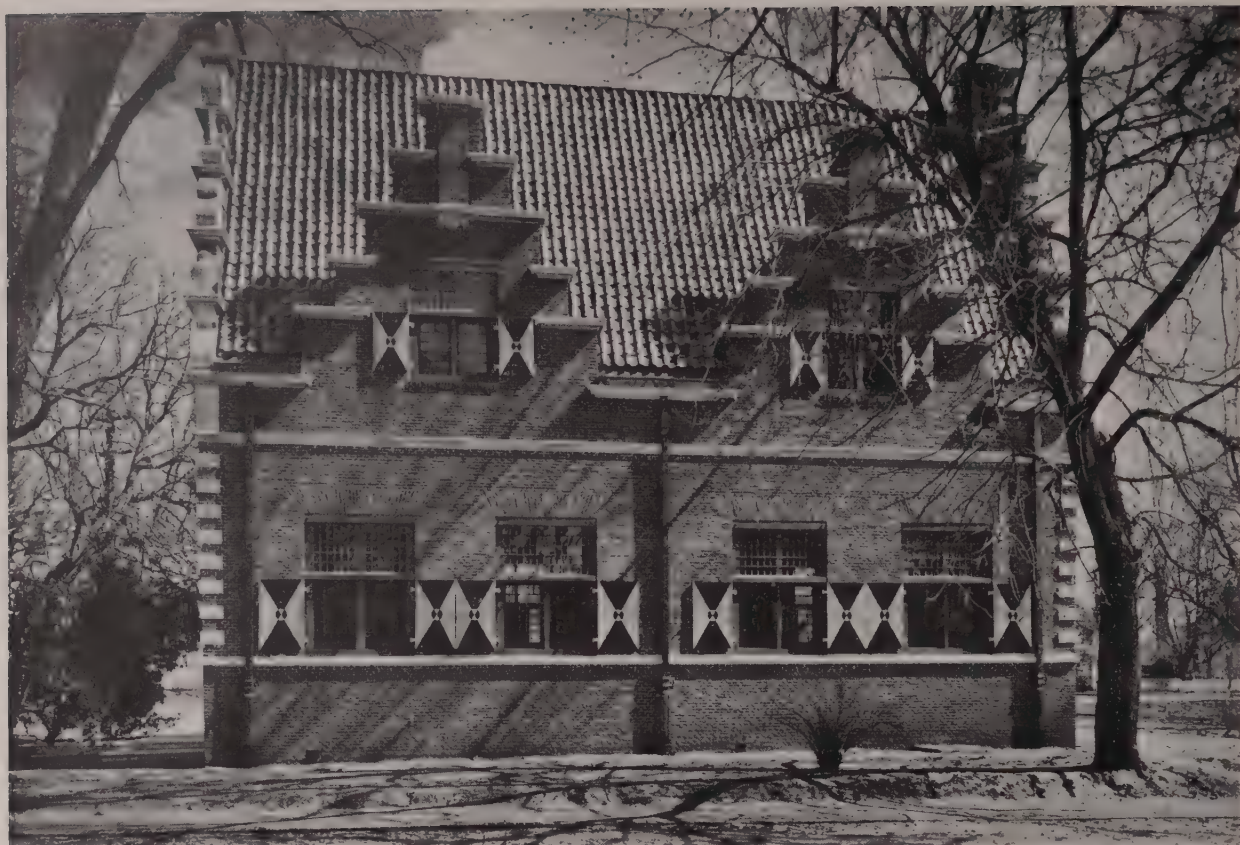
Photographs by Philip B. Wallace

This building has been erected to commemorate DeVries's Dutch settlement of Delaware in 1631. Zwaanendael, which means dale of the swans, was the Dutch name for their settlement. Many of the details of this building are adapted from the old Town Hall in Hoorn, Holland, which was built in 1613, and consequently was in existence when DeVries left his native land to come to Delaware. The architect measured the work on the old Town Hall, but, finding that some details had been incorrectly restored, had to go back to the old drawings now treasured in the Museum of Hoorn

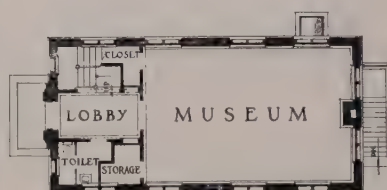
E. WILLIAM MARTIN, ARCHITECT

Zwaanendael House, Lewes, Del.

« ARCHITECTURE »



SECOND FLOOR PLAN



FIRST FLOOR PLAN

SCALE 1" = 10'

The brickwork is laid up with small units, $7\frac{1}{2} \times 3\frac{5}{8} \times 1\frac{3}{8}$ inches, specially made to match bricks in the old Town Hall in Hoorn. Trim is of limestone. Shutters are painted red and white, the town colors of Hoorn, while the window frames and doors are painted a deep Holland blue. A great deal of the ornament and the entire front entrance are taken from the original Town Hall

◀ ARCHITECTURE ▶



House of Vernon H. Brown, Southampton, N. Y.

POLHEMUS & COFFIN, ARCHITECTS

Photographs by Robert Tebbs





*The terrace side of the house.
There is a somewhat unusual
feature in the shelter for tools and
toys, adjoining the garage at the
far end of the terrace*



*A detail showing the front entrance
and the little picket fence which forms
the dooryard enclosure*

« ARCHITECTURE »



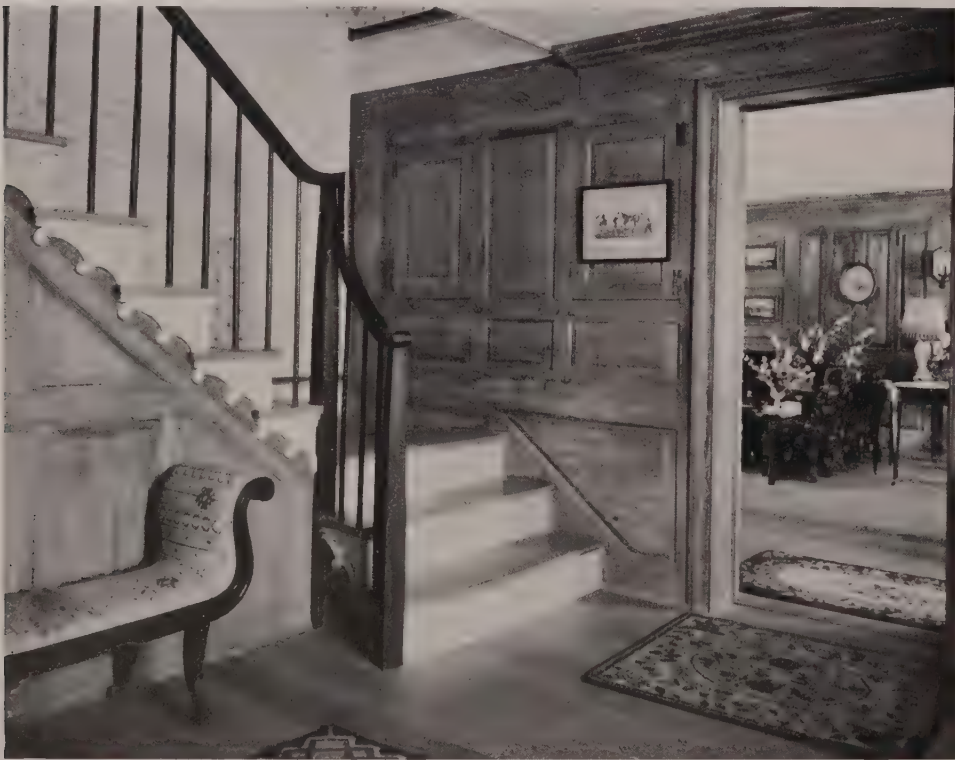
*The living-room, which is pan-
elled in pine. At the right is the
doorway leading to the guest
wing, isolated at one end of the
ground floor*



*Entrance from the terrace to the flower-
room, or solarium, with its two curved
bays of fixed glass*



Above, the solarium, upon the wood floor of which have been painted the fret border and a decorative star indicating the points of the compass. Below, a corner of the hallway, also panelled in pine, with the door to the living-room at the right



Wednesday, November 29.—D. Knickerbocker Boyd comes across with an idea for a sort of nationwide competition among cities of the larger size, to clear their slums and embark upon a master plan. The competitive element is introduced by providing that government aid would be extended to the most promising scheme or schemes for the development of a rational and beautiful city.

Thursday, November 30.—B. G. Dahlberg, of the Celotex Company, brings up some rather startling figures in regard to the building situation. When we mention the over-production of homes in 1925, we are only talking of too many homes for half the people. Statisticians announce that we need 1,350,000 family units to make up for the dwellings not built in the past four years. Here again they are calculating needs of only the upper half, because this half is where the home-building industry has been doing its business. It is estimated that ten or eleven billion dollars is required to bring us back to the housing level of ten years ago. It must be remembered that in 1901, when Theodore Roosevelt entered the White House, New York City became so aroused about the condition of its tenements that it passed a new law setting a higher standard for these buildings. Nevertheless, in 1933, when Franklin Roosevelt entered the White House, 1,800,000 New York families ate what breakfast they could scrape together in the same structures that begot the 1901 law.

Friday, December 1.—A writer in *The Weekly Bulletin* of the Michigan Society of Architects, points out that last year the assessed valuation of Detroit was approximately \$2,500,000,000 while \$20,000,000 was paid out in doles. That figures \$8 to the thousand of assessed valuation. "Now, supposing my assessed valuation was \$4,000, and that I hired, last year, in extra labor for my house and yard, \$32 worth of labor. If each one had done that in proportion to his valuation, there would have been no one on Detroit doles. That would have been more satisfactory and lots less expensive."

Saturday, December 2.—Sir Raymond Unwin, whose visits to America are always productive of greater thought on our part with regard to housing, brings us several rather startling facts out of the experience in England.

In spite of the fact that there are usually twelve houses to the acre in the British cottage developments, the garden efficiency of the residents is such that the produce of their small pieces of land is greater to the acre than the average of farm land in England.

The English usually figure a sixty-year period for amortization instead of our twenty or thirty years. Their practice makes possible much lower rents.



The Editor's Diary

Part of the reason is the fact that they have built more substantially. Sir Raymond says that "practically no wooden houses have been built in England for several hundred years."

Monday, December 4.—John M. Lyle, architect, in from Toronto. He has been one of the pioneers in establishing the theory that there is no particular need for us to use, today, architectural ornament based on the lotus or the acanthus leaf. We have flora and fauna of our own which are more significant. Mr. Lyle's firm has produced a surprising amount of work, largely in Canadian banks and other public or semi-public buildings, in which the building itself has a clean, businesslike austerity, such as we associate with modern work, but depending upon concentrated bits of ornament, usually carved in the stone but sometimes cast in metal grilles or modelled in plaster, which recall the birds, beasts, flowers, and grains of the North American continent, and particularly of his own Canada. He has shown a remarkable ability to conventionalize these elements, seeking always for a pleasing rhythm and flow of line—usually extremely flat in projection—but full of appeal for the man in the street. The latter may be very hazy as to what a guilloche is, but recognizes and respects the Canadian geese, a sheaf of wheat, or a beaver.

Tuesday, December 5.—This day and date can have no greater significance in history than by reason of the fact that it marks the end of a futile experiment—an experiment in which the Constitution of the United States was debased to the level of a police regulation.

Thursday, December 7.—Dean Joseph W. Barker, of the Columbia University School of Engineering, says that we are using our eyes for severe visual tasks to the extent of about 30 per cent more than was common a generation ago, and many times more than a century ago. The Dean is pleading for better lighting in libraries. He says that it takes three times as much light to read a newspaper with the same ease as the pages of a well printed book.

Saturday, December 9.—A decision of Judge John T. Loughran, of the Supreme

Court of New York State, may have some significance in connection with the architectural profession. Judge Loughran denied application for an injunction against the enforcement of Rule 8 of the State Board of Regents respecting advertising by dentists. The State seeks to regulate, through its Board of Regents, what has been termed unethical or misleading advertising. Forbidden forms of that advertising are described in the Rule as:

"The employment of letters, handbills, posters, circulars, cards, stereopticon slides, motion pictures, radio, newspapers, or other advertising devices for the purpose of soliciting patronage, except that a dentist may use personal professional cards of a modest type announcing his name, title, address, telephone number and office hours."

The Attorney-General, John J. Bennett, Jr., in an opinion upholding the constitutionality of the Regents' Rule said: "The practice of dentistry should not be allowed to degenerate into a scramble for patients in which the advantage will be with the unscrupulous."

The tide seems to be turning rather definitely against advertising by members of various professions.

Wednesday, December 13.—Secretary Ickes has appointed a National Advisory Committee to co-operate in formulating the plans and directing the project of a national survey of strictly American buildings, which will be carried out under the Civil Works program. Doctor Leceister B. Holland is to be chairman, the other members being John Gaw Meem, Santa Fé; William G. Perry, Boston; Albert Simons, Charleston; Herbert E. Bolton, University of California; Miss Harlean James, Washington; and Doctor Waldo G. Leland, Washington.

Thursday, December 14.—Lunched with Alfred Hopkins, who finds his chief recreation from architectural practice in music. At the moment he is studying the whole theory of musical composition, and is much impressed by similarity between music and architecture, in that each depends so much for its esthetic appeal upon rhythmic repetition. Another thing that a full and active life has taught him is that no country house is completely satisfying without pigeons. Upon his own place in Princeton they have their own home above the garage, and brighten the garden and terrace with their flights, struttings, tumblings, and other activities.

Saturday, December 16.—We sometimes pride ourselves upon the elaboration and grandeur of our advertising projects in this country, but W. Buchanan-Taylor has just sent me one from London which rather outshines anything I have seen for some years.

« ARCHITECTURE »

It is a copy of a limited edition of a book issued upon the opening of the Cumberland Hotel on December 12, for which F. J. Wills was the architect, and Oliver P. Bernard, architect-designer for the public rooms. The book contains a foreword by John Drinkwater, a historical sketch of the site by Philip Page, a very brief impression of the hotel itself by "Cosmopolis," and a frontispiece by William Walcott. Moreover, the authors all inscribe the book, which is printed by the Golden Cockerel Press, and bound in Welsh Mountain sheepskin.

Sunday, December 17.—William Sloane Coffin, president of the Metropolitan Museum of Art, died very suddenly yesterday—a really serious loss to a widespread community. Mr. Coffin, like too many men of this day, burned the candle at both ends through his tremendous energy and his constant desire to be of service to his fellow men. Just as an indication of the breadth of that interest, besides being president of the Museum, Mr. Coffin was vice-president of the W. & J. Sloane Company; president, City Mission Society, founder of the Arts-in-Trades Club, trustee of the Provident Loan Society, in addition to his activities in the Home Thrift Association, the National Academy of Design, the Presbyterian City Missions, the St. Andrew's Society of the State of New York, and the Brick Presbyterian Church, of which he was an elder.

Monday, December 18.—Spent the evening rewiring the humidity control for my house. Two faults were finally rectified. One was a constant hum of the solenoid valve when the valve is being held open. This I found easily remedied by changing the alternating current actuating it to direct current, through the insertion of a plate rectifier. The second difficulty was that when the humidistat called for more moisture in the air, it turned on the water flow over the humidifying unit which, however, might or might not be hot enough to vaporize it. By taking the power for the humidistat circuit from the power supplying the oil burner motor—beyond all the various controls—the solenoid valve will open only when the oil burner is working, and will close when it stops. We are surrounding ourselves apparently, in this stage of civilization, with a complexity of electrical controls which are fascinating if one takes the trouble to know about them, and probably very annoying when they get out of order and one does not know how to fix them.

Wednesday, December 20.—At a building congress luncheon today Mr. Travis H. Whitney, New York City's Civil Works Administrator, outlined to us his conception of the C. W. A. function. It is designed to bridge the gap between the

ending of local work relief and the start of federal public works here. Julian Levi seems to think that it may help to solve some of the difficulties of the Architects' Emergency Committee, which has already placed some three hundred men at useful work for a fair wage.

Langdon W. Post, recently appointed Tenement House Commissioner for the incoming administration, warned us not to expect Utopia soon after the first of the year. When asked by a reporter whether his work would change the face of Manhattan, he replied that he would be well pleased if his work could remove from that face one small pimple. With the best intentions and efforts now available, he thinks it will take fifty years to clean up New York City of its slums.

Thursday, December 21.—The rumor that unemployed artists are to be set at painting the walls of government buildings throughout the country arouses a mixture of conflicting thoughts. It is good news that the painters are to have something to occupy them and to be paid for their time, but, on the other hand, it is disturbing to think that we may be letting ourselves in for a flood of murals, some of which may be very good, but most of which are sure to be very bad. After all, there are not more than half a dozen painters in the United States who can conceive and create a mural with which most of us are glad to live. What the others will do to us now that the lid seems to be off, makes the chills run up one's back.



Saturday, December 23.—They were putting up the Frank Brangwyn mural paintings in Rockefeller Centre the other day when I passed through there. Although the scaffolding prevented a really adequate view of these works, I was struck by the fact that the modern office building is a rather unsatisfactory place for mural paintings. The ground floor space, even though carried through two stories, seems relatively low, full of piers, divided up by wide elevator corridors, and the like, so that one has to take his murals on the run, as it were, and get very little more impression from them than one does from the index of tenants. These murals of Brangwyn's turn around corners, are obstructed by piers, and are impossible to see as a whole. The one really adequate space for a mural in this particular building was the one facing the front doors given over to Diego Rivera, and since entirely covered up.

Monday, December 25.—The Lavanburg Foundation has just discovered some interesting facts about the Knickerbocker Village slum replacement and what happens to those who lived there.

The location happens to be within walking distance of the City Hall and Wall Street, so logically enough it is transformed from a slum to housing for the white-collar workers who are able to pay somewhat higher rentals. The Foundation finds that the living habits of 83 per cent of the vacating families remain unchanged. They simply move into the outskirts of the reconstructed area and push that territory a little nearer a slum classification. Rents in the old tenements ranged from four to fourteen dollars a month for two rooms, nine to forty-two dollars for four rooms.

Tuesday, December 26.—The P. W. A. allotment of \$3,500,000 for making a series of real property inventories in urban areas is a fine thing, but one wishes that it could have been done several years ago. The scheme calls for employment of white-collar workers to assemble and analyze facts upon which the national government and local groups can build projects involving houses, social centres, recreation facilities, etc. The trouble is that we should have known long ago what we really need in the way of rational community planning. It would seem that we should have known long ago that we were building ourselves into a hopeless tangle, and should have at least made a start at working our way out. Now that public works money is available, we do not know how to spend it intelligently. One of the most disheartening phases of the whole matter is that we may make a plan for a slum area, for example, in some city, only to find that such a plan is no good unless it is properly related to the plan of the whole city, the country, the state, and the nation.

Thursday, December 28.—The news that Sir Raymond Unwin would address real estate, architectural, and building representatives at a luncheon today, brought out a crowd of many hundreds. His half century of experience in city planning commands the respect and keen attention of all of us. Sir Raymond made the point once again that the situation in England is quite different from that in America in that over there they think of investment in property wholly on the basis of income production over a long period. Here, on the other hand, we think of capital appreciation in the frequent turnover of the property. Naturally the latter cannot go on forever pyramiding prices. One dramatic point of Sir Raymond's in emphasizing the desirability of utilizing more land for our building purposes: why do we keep herding ourselves into crowded quarters when so much land is available? The present population of the world, including the many millions of China and India, could be housed, on a basis of ten houses to the acre, in a portion of the earth's surface just about the size of the State of Kansas.

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Alois Lang, Wood Carver

IN spite of the dominance of the machine in this age, there has grown an increasing recognition of the art of wood carving, particularly in ecclesiastical work.

Among the most prolific of those who are carving wood today in America is a sculptor by the name of Alois Lang. For more than forty years he has been turning out ecclesiastical figures and other subjects until the number has grown to such a total that Mr. Lang himself does not know how many he has carved. It is quite probably in the neighborhood of two thousand pieces.

Alois Lang was born in Oberammergau, a cousin of Anton Lang who played Christ in recent performances of the Passion Play. Trained in the wood-carving school of that mountain village, Alois Lang came to America as a youth of nineteen. For a time he worked

with an architect in Boston, then went to Manitowoc, Wis., where ever since he has been carving wood for the church division of the American Seating Company. A true sculptor, he likes to work in clay as a preliminary to the actual carving. For material he uses oaks and the softer limewood, and like other craftsmen of this day, he uses the fumes of ammonia to color the woods to the proper hue rather than have time do it.

A list of churches in which Mr. Lang's wood carvings appear would be a long one indeed. Girard College Chapel, Philadelphia; Christ Church, Boston; Trinity Cathedral, Cleveland; Temple Emanu El, New York City; St. Charles Barromeo Seminary, Overbrook, Pa.; First Unitarian Church, Buffalo; All Saints, Pasadena; Shrine of the Little Flower, Detroit; and Christ Church, Cranbrook, Mich., are but a few of the settings in which Alois Lang's wood carvings may be found.



From University of Chicago Chapel, in which, under the direction of Mayers, Murray & Phillip, Alois Lang supervised the work of many wood carvers

At top right-hand corner of the page, a panel for the balcony front, University of Chicago Chapel

At right, figure carved for the Church of the Little Flower, Detroit, of which Henry J. McGill is the architect

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Lower terminal of a group of organ pipes, University of Chicago Chapel



In the upper left-hand corner, "Nativity," a plaque in St. John's Church, Detroit, Mich., of which Nettleton & Weaver were the architects

"Suffer Little Children," a bas-relief in St. John's Church, Buffalo, N. Y., of which the architects were Bertram G. Goodhue and B. G. Goodhue Associates

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"The Supper at Emmaus," in St. Mark's Lutheran Church, Washington, Ill., designed by Mr. Lang



"Jeanne D'Arc," executed by Alois Lang originally for Neil J. Convery, architect, of Newark, N. J.

"Sending Out the Twelve," in St. Joseph's Episcopal Church, Detroit, of which Nettleton & Weaver were the architects





Better Practice

By *W. F. Bartels*



1—SELECTION OF BRICK

IN specifying brick the architect should have in mind the best quality product produced in the locality where his job will be. He should be well informed as to the other bricks of inferior quality used locally and so word his specification as to exclude them. Often it is advisable to limit the choice to certain well-known brands. Once chosen for certain uses, the brick should be used exclusively for that work, and no brick of different brands or compositions allowed. Nothing looks worse on an exposed wall than bricks of inferior quality spotted throughout. This is likely to occur despite any assurance that such odd ones will be used on the inside of the wall only. In general the brick should run true to form, with square edges, be well burned, and produce a good ring when struck. They should not absorb too much water.

2—MORTARS

The cement the architect specifies for use in his brickwork will, of course, depend upon a number of conditions. It may be desired to use a non-staining type because of stone-work, a quick-setting cement, or one containing a waterproofing compound. Often an architect will allow two different brands of cement to be used on the same job by different contractors, so that their bags of cement will not become "mixed." In other words, one contractor's men might get in early and "inadvertently" use some of the other's cement.

Sand is often called for to be "free of loam, grit, or vegetable matter." Grit in this instance does not mean sharp sand, but sand with particles large enough to prevent a smooth application of the mortar by the trowel. Grit is easily detected. In good times the bricklayers will just refuse to use it, or if they do use it, the number of brick they will lay per day will be adversely reflected in the contractor's loss. Then too, the specification may call for a sand from a particular pit, or have qualifying qualities such as how it is washed, cleaned, etc. Vegetable matter can be determined by certain chemical tests and should come within the

BRICKWORK

standards set by well-known authorities. Few indeed are the sands that are "free from loam." To put an unqualified clause such as this in the specification means that either a great amount of trouble will be incurred in obtaining such sand, or else it probably will be used on the job regardless of its loam content. White or beach sand for use with face brick should not contain too much salt.

Too often on a job there are disputes as to the amount of lime to be used. Some specifications designate 10 per cent, others a shovelful to each bag of cement. Then it simmers down to whether it is 10 per cent by weight or volume, and "how much is a shovelful." Whichever it may be, every one will agree that if lump lime is used it should be slaked at least two weeks before it is used. Any unslaked particles will swell or blister, causing subsequent damage to the brickwork. The more fatty the putty is, the better it will be for the masons, because it will "slide" more easily.

Too often the colored joints of brickwork assume all shades and hues after exposure to the weather. This could be eliminated if the architect were to specify that the mortar colors to be used must be on the job well in advance of the time they are needed, so that when the mason is ready to use them he could not purchase any questionable substitutes with the excuse that the work will otherwise be held up.

The proper mixing of mortar for

brickwork is important. The architect generally specifies this clearly and distinctly. But the contractor often does not take this part of the specification very seriously. While visiting a six-story apartment in the course of erection, in a section of New York, I watched the man running the mixture. He was putting in 27 heaping shovels of sand, 4 of lime and 2 or 3 small shovels of cement. The specification called for a 1 to 3 mix, with 10 per cent lime. I called this to the attention of the contractor's superintendent. He showered the workman with all the non-dictionary words known to any southern European. We climbed the stairs to the roof of the building. Looking over the edge of the roof I saw the mixer up to his old proportions again. With his fog-horn voice the superintendent shouted down that he was "fired." When we arrived at the first floor he was packed up ready to go. Passing by another of this contractor's jobs in a different section of town, one in which my firm was not interested, I chanced to look at the man at the mixer. It was my friend of yesterday. Not "fired," but just promoted to another job.

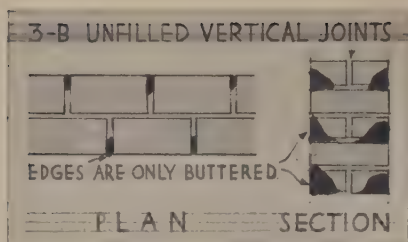
3—METHODS

It is inexplicable that any one knowing the damage and discomfort caused by wet walls (resulting from poor brickwork), should be careless in writing specifications for such work, or fail to have the specifications enforced. Bricks of poor quality may crack and cause leaks, for which neither bricklayer nor mortar may be culpable. But there are a number of defects due to the human factor which are inexcusable.

The specification should call for full-bed joints, all bricks to be laid by shoving (Fig. 3A), and all cross joints to be filled solid, and not merely buttered on the edges (Fig. 3B). With all joints solidly filled, a solid wall naturally results. In many localities bricklayers groove the mortar on the horizontal beds of their brickwork. The Common Brick Manufacturers' Association publishes a booklet (which should be digested by every architect) in which a full *flat* bed of mortar for strength



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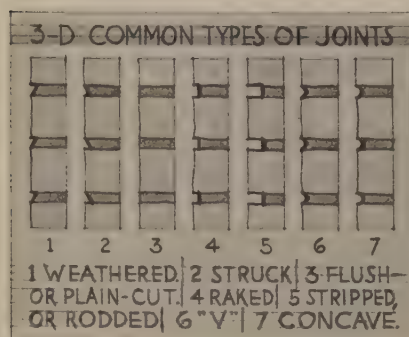


and weather tightness is recommended (Fig. 3C). Some contractors advance what at first seems a plausible, scientific argument: "To fill the joints solid means that capillary attraction results in damp interior walls." Even if partially true, it would seem, for the sake of argument, that it is preferable to have a little moisture present rather than having the wind blow the rain right through the wall. If the bricklayer is told to leave a little space between the mortar edges, it will not be long before he will instead be leaving just



a little mortar between the spaces. The joints around the chimney are especially vulnerable points and should not be neglected. Particularly is this so of the space between the flue lining and the brickwork. This space should be absolutely tight. All firebrick will, of course, be called for to be laid in fire clay. Joints between flue pipes should be struck.

Having taken precautions to see that he does get a good job on his walls, the architect should not allow chasing and cutting so to thin his



walls that they will be materially weakened. Most building codes forbid or limit the chasing and cutting.

That all bricks should be thoroughly wet except in freezing weather, is always good advice. In the matter of broken bricks, or bats, it would seem that, rather than calling for whole bricks only to be used, with bats for filling out, it would be better to put a limit on the proportion of bats to be used under any conditions. Thus, by limiting them to 10 per cent the architect does not encourage a barrage of contractor's arguments or excuses later.

In order to be certain that the client (and architect) will know exactly how the brickwork will look, it is advisable to have a good sized panel laid up with the approved shade of mortar, and the joints struck as specified. This will also serve as a gauge for the work as it progresses, and any departure can be condemned by direct comparison. Otherwise the superintendent will be able only to guess at what was actually desired, particularly when bricks of several shades are to be mixed. Laying up several contrasting panels is the only sure way of determining the best effect. It is virtually impossible to visualize a pier of brickwork from seeing only a few sample bricks brought into the office by salesmen, showing wads of paper to simulate mortar.

When a graduated color effect is desired the architect should visit the job daily. Otherwise the contractor or the superintendent will exercise his own judgment, and the finished result may be disappointing to both client and architect.

The architect will specify, or choose from a sample built for the particular job, the kind of bond and joint that he desires. The joints should be moderate in size. If they are too thin the bricklayer is slowed up in his work. If they are too thick the work is likely to slide and give very poor results. With wide joints, not too many courses at any one place should be permitted, in order to give the mortar a chance to set.

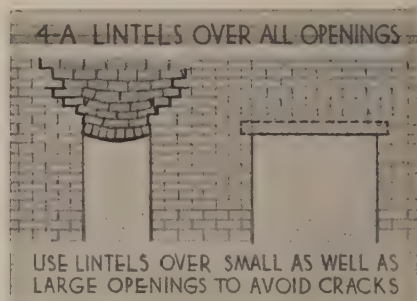
The finish or striking of the joints should be described and "full-sized" also, and it must be insisted on that this be carried out according to the approved sample, description or drawing. Some bricklayers get careless about the finishing work and are willing, as they say, to "let the lightening strike the joints." Various types of joints are illustrated in Fig.

3D, but it might be mentioned in passing that although the weathered joint is the most practical from a lasting point of view, it is also one of the most difficult properly to execute.

The bond used should be fully drawn, explained, and described, because the middle course in a 12-inch wall is susceptible to rather poor work, and becomes too often a dumping space for bats or rubbish.

4—SUPPORT

Bricks can form very good and substantial arches, but when used they should be properly detailed. However, it is probably cheaper in most cases to carry brickwork on other supports, such as steel lintels. The architect should not hesitate to call for lintels over even the smallest openings to eliminate the possibility of sagging (Fig. 4A). It is true that



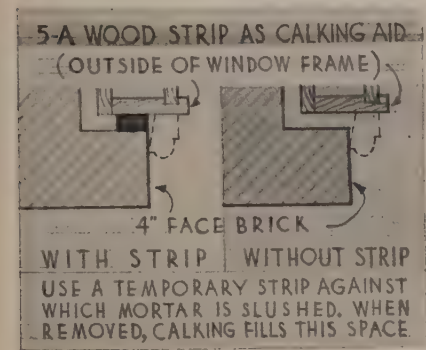
once set a brick arch probably will be satisfactory, as witnessed by work as old as the Roman. Cracks and leaks often develop because the masonry was overloaded when it was fresh or green. Too often lintels are not specified as to weight or thickness. In some parts of New York it is common practice to put in steel lintels $\frac{3}{8}$ " in thickness where $\frac{1}{4}$ " is understood or even specified. With the price of steel at its present figure there is no excuse for skimping on lintels—in fact, there is none at any time, for permitting the installation of inadequate ones. Moreover, the length of the lintel is too often slighted. Merely to provide for a scant bearing is not good practice. The lintel should be long enough so that each side has at least 5" bearing on one complete stretcher.

5—CONSTRUCTION

In the masonry specification too much can hardly be said about the necessity for walls being plumb. Many worries on the job are traceable to the simple fact that the masonry was out of plumb. Interior

shafts in particular seem generally to be built without plumb bobs. On the exterior seldom are the vertical joints kept as rigidly perpendicular as they should be. Often an architect wants a bond in which the brick headers are supposed to line up vertically, but on the job they form only a crazy-quilt pattern. Such experiences are discouraging, but may be traced partly to the fact that the specification was not sufficiently emphatic, and no approved sample had been laid up. The bricklayer should be responsible for all window frames being built in plumb and being set in the same plane. If this is not done he will blame the carpenter for their not being straight.

In solid brick walls it is well to have a wooden strip left between the window frame and the outside course of brick. This will provide a stop so that the mortar may be slushed up around the frame and so provide a space for the calking. If a staff bead is used this will, of course, not be put on until after the calking is done (Fig. 5A). A large building opera-



tion was recently stopped but no one knew why. It remained for a bricklayer to volunteer the reason to the rank and file. The calker had objected to the large opening around each sash, maintaining he was only required to fill holes of a certain size. The architect had not stated that the space up to the window frame had to be filled up with mortar, hence the bricklayer was doing it the easiest way, much to the detriment of the calker and the progress of the job.

Often in the construction of small brick houses, where the front walls are of face brick and the side walls of common brick, the side walls are erected at one time and the front walls at another. While these walls are supposed to be bonded or toothed to each other, too often each is stopped off straight and held only by

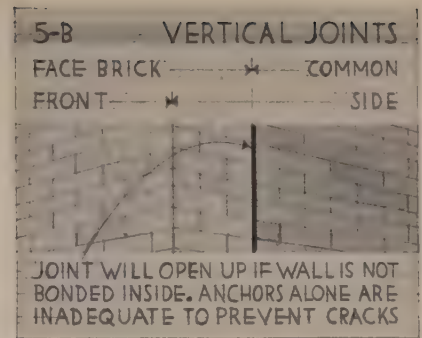
iron anchors. Usually the anchors are too far apart to be effective. Even if they were closely spaced, the method is unsatisfactory from a construction standpoint, and should not be sanctioned. Dependence upon anchors to unite walls should be forbidden, and all walls should be erected at the same time. If this is not done, in all probability cracks will appear and, with a wind and rainstorm, leaks will occur (Fig. 5B). If a straight line of face brick is desired, this may be obtained by making a vertical joint in the outer 4", but thoroughly bonding the inner 8". Beam anchors must not be forgotten, and particular attention should be called to the anchoring of any steel or wood girders supporting other beams.

Sills built of brick and other exposed parts, such as copings (Fig. 5C) should have more pitch than they generally do. The water will then flow off more quickly and lessen the chances for leaks, particularly in the case of sills. The latter should be provided with drips whenever possible. Another precaution in the erection of sills is the requirement that a board be so placed that the edges or ends of the bricks will line up against it, and so be held in place until they are thoroughly set (Fig. 5D).

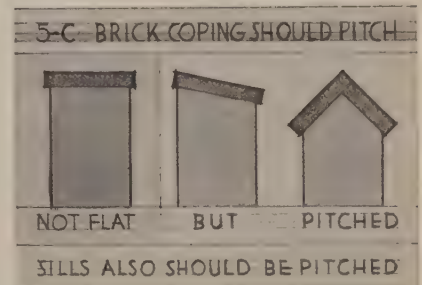
6—MATERIALS FURNISHED

There are many items properly coming under the bricklayer's contract which are better mentioned and described in order that there may be no dispute about them later. Some of these are: flue linings, sills, tile or stone coping, fireplace dampers, throats, cleanout boxes and lintels. The latter should be well painted and dry before being used. If the carpenter is to furnish centering, the bricklayer should be told of it specifically, so that there will be no danger of duplicating this cost in his estimate. Often on small jobs the bricklayer is required to furnish and put in the fill or deafening for the bathroom floors. He usually is called upon to build in any anchors necessary in his work, such as those required for stonework, door frames, and other similar items. Anchors under the latter classifications are generally furnished by the other contractors, but are built into the brickwork. The wood-beam anchors on small jobs are generally furnished by the bricklayer.

The bricklayer must insert an-

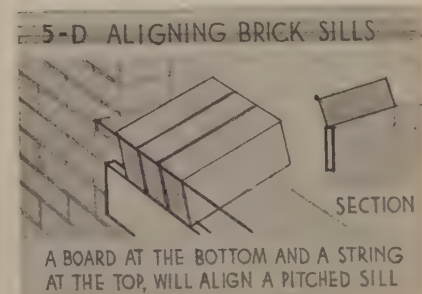


chors for pipes and mechanical equipment, etc., provided such anchors are shown on the drawings and furnished him. But it is unfair to this contractor to tell him on the job that he must furnish and install anchors for such and such a line of pipe, and for certain other equipment, unless he previously has been given specific information on the plans as to where they are to go. Admittedly, what he does is to figure in this cost, and then hope he can later talk his way out of doing it—which in most cases he does. It would be better for



the client's interest in this case if the installation of the supports were left out of the brick mason's specification, and the burden of the anchoring put upon the plumber, or to whomever the equipment happened to belong.

Likewise with cutting and patching—a masonry contractor cannot be expected to do any more than is shown by the plans and specifications. He cannot be expected to go back and cut out for a line that the



architect has failed to show on his drawings. If the contractor does this without argument you may be sure he has anticipated this in his bid. Every architect's oversight is always paid for, usually by the owner. The contractors in any locality have the architects "catalogued," and will often do the same work for one cheaper than another, because they know that under the former they will not be made to do work not covered by plans and specifications.

Many brick veneer jobs are being done today over defective stucco walls. They are also being done over other kinds of exteriors, such as wood siding or shingles. All too often these jobs give evidence of work done without the architect's supervision. Many are flimsy and will themselves be the cause of regret in a few years. Proper flashing

is not furnished. The architect would see to this. He would see that proper footings for the brick veneer were provided, and proper support given where the brick goes over a window opening. He would see that the work fitted snugly against the window frame, and that the frame was properly calked. Non-corrodible ties should be specified and used. They should be fastened to the building with the same type of non-corrodible nails. The proper weight of saturated paper must be used. Whether or not a job has an architect can often be ascertained by the paper used under the brick veneer: 24-pound paper, or heavier, indicates an architect on the job; 15-pound paper indicates that the contractor has had a free hand. The difference between the cost of these papers is so slight on a small job that it seems a shame to use the lighter one.

If any special features in brick veneer work are included, or if the work is different from the general run of work done by the contractors estimating on this job, they should be fully apprised of all differences and given full details. If the brick veneer is to be built a certain distance away from the wall, or if the arrangements are made to vent between it and the sheathing this information should be given to the contractors. They must emphatically be informed that they will be expected to live up to all requirements of the work.

7—CLEANING

The architect should include cleaning under his brickwork specification. The method to be used should be fully described, because otherwise the bricklayer will probably either forget to do it, or do it his own way.



Detail, Hotel Shelton, New York City. Arthur Loomis Harmon, Architect

◀ ARCHITECTURE ▶

THE EIGHTY-EIGHTH IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS
ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

ARCHITECTURE'S PORTFOLIO OF CHURCH DOORS

*Subjects of previous portfolios are listed below
at left and right of page*



*Below are the subjects of
forthcoming Portfolios*

Fountains

MARCH

Modern Ornament

APRIL

Rustication

MAY

Organ Cases

JUNE

Garden Furniture

JULY

Window Heads, Exterior

AUGUST

*Photographs showing interesting
examples under any of these head-
ings will be welcomed by the Edi-
tor, though it should be noted that
these respective issues are made up
about six weeks in advance of
publication date.*

❖ 1926
DORMER WINDOWS
SHUTTERS AND BLINDS

❖ 1927
ENGLISH PANELLING
GEORGIAN STAIRWAYS
STONE MASONRY TEXTURES
ENGLISH CHIMNEYS
FANLIGHTS AND OVERDOORS
TEXTURES OF BRICKWORK
IRON RAILINGS
DOOR HARDWARE
PALLADIAN MOTIVES
GABLE ENDS
COLONIAL TOP-RAILINGS
CIRCULAR AND OVAL WINDOWS

❖ 1928
BUILT-IN BOOKCASES
CHIMNEY TOPS
DOOR HOODS
BAY WINDOWS
CUPOLAS
GARDEN GATES
STAIR ENDS
BALCONIES
GARDEN WALLS
ARCADES
PLASTER CEILINGS
CORNICES OF WOOD

❖ 1929
DOORWAY LIGHTING
ENGLISH FIREPLACES
GATE-POST TOPS
GARDEN STEPS
RAIN LEADER HEADS
GARDEN POOLS
QUOINS
INTERIOR PAVING
BELT COURSES
KEYSTONES
AIDS TO FENESTRATION
BALUSTRADES

❖ 1930
SPANDRELS
CHANCEL FURNITURE
BUSINESS BUILDING ENTRANCES
GARDEN SHELTERS
ELEVATOR DOORS
ENTRANCE PORCHES

1930 ❖
PATIOS
TREILLAGE
FLAGPOLE HOLDERS
CASEMENT WINDOWS
FENCES OF WOOD
GOTHIC DOORWAYS

1931 ❖
BANKING-ROOM CHECK DESKS
SECOND-STORY PORCHES
TOWER CLOCKS
ALTARS
GARAGE DOORS
MAIL-CHUTE BOXES
WEATHER-VANES
BANK ENTRANCES
URNS
WINDOW GRILLES
CHINA CUPBOARDS
PARAPETS

1932 ❖
RADIATOR ENCLOSURES
INTERIOR CLOCKS
OUTSIDE STAIRWAYS
LEADED GLASS MEDALLIONS
EXTERIOR DOORS OF WOOD
METAL FENCES
HANGING SIGNS
WOOD CEILINGS
MARQUISES
WALL SHEATHING
FRENCH STONEWORK
OVER-MANTEL TREATMENTS

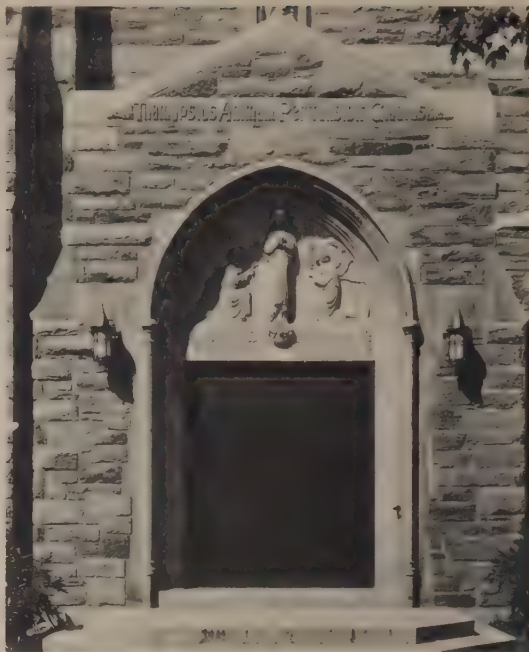
1933 ❖
BANK SCREENS
INTERIOR DOORS
METAL STAIR RAILINGS
VERANDAS
THE EAGLE IN SCULPTURE
EAVES RETURNS ON MASONRY
GABLES
EXTERIOR LETTERING
ENTRANCE DRIVEWAYS
CORBELS
PEW ENDS
GOTHIC NICHES
CURTAIN TREATMENT AT
WINDOWS

1934 ❖
EXTERIOR PLASTERWORK



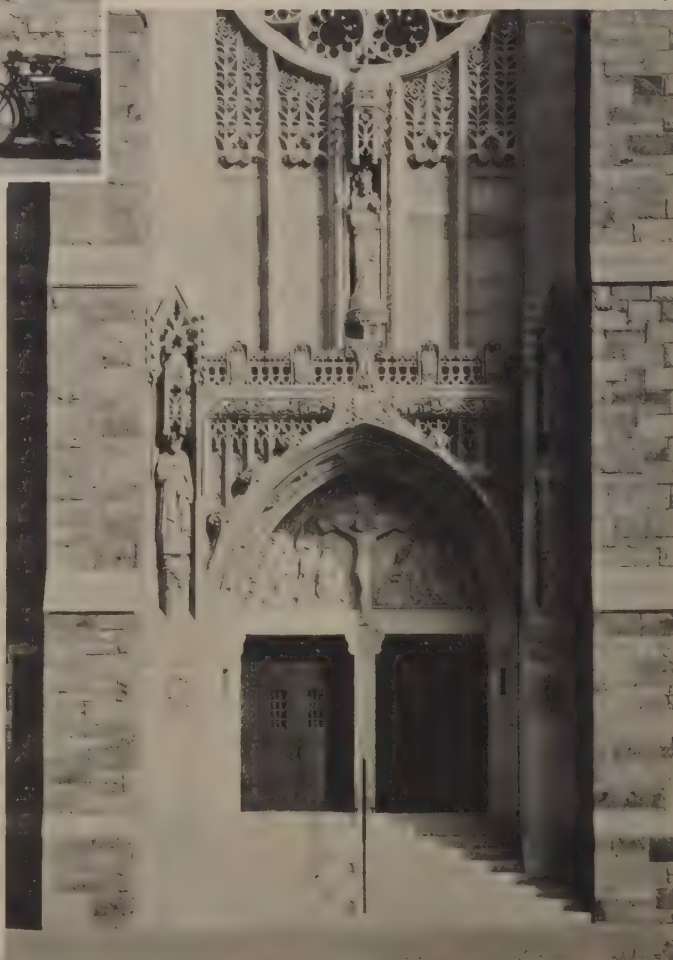
South door, Pont de L'Arche, Normandy

*Park Avenue Baptist Church, New York City
Henry C. Pelton; Allen & Collens*



*Church of Our Lady of Sorrows,
South Orange, N. J. Maginnis & Walsh*

*Church of St. Peter and St. Paul,
The Bronx, N. Y. Robert J. Reiley*





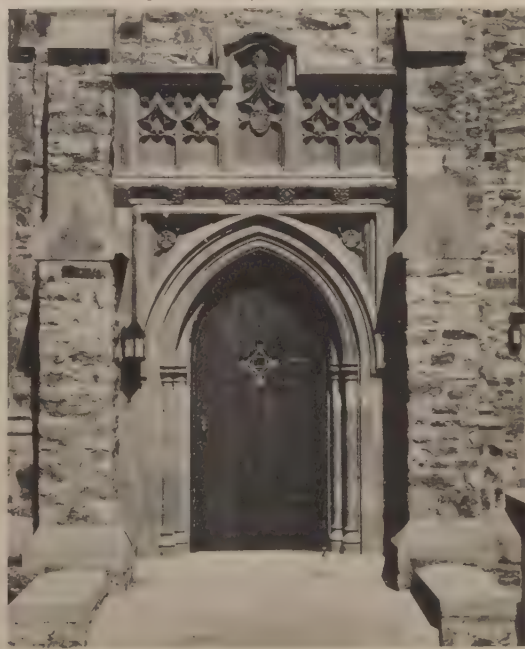
*North door to narthex, Princeton Chapel
Cram & Ferguson*

*Chapel of the Intercession, New York City
Bertram G. Goodhue*



*South door (c. 1495) Notre Dame, Louviers,
Normandy*

*Blanchard Chapel, First Presbyterian Church,
Passaic, N. J. Harry Leslie Walker*





Main entrance, west front, St. Patrick's Cathedral, New York City. James Renwick

*Park Avenue Baptist Church, New York City
Henry C. Pelton; Allen & Collens*



*Chapel of the Intercession, New York City
Bertram G. Goodhue*

*Fourth Presbyterian Church, Chicago
Cram, Goodhue & Ferguson; Howard Shaw*





*Chapel of the Cross, Chapel Hill, N. C.
Hobart Upjohn*

*Church of the Heavenly Rest, New York City
Mayers, Murray & Phillip*



*Grace Church, New York City
James Renwick*

*St. Hugh's Rectory, Philadelphia, Pa.
Henry D. Dagit & Sons*





*Holy Name of Jesus Church, East Orange, N. J.
Maginnis & Walsh*

*Chapel entrance, Church of the Heavenly Rest,
New York City. Mayers, Murray & Phillip*



*St. John's Church, Lattingtown, Long Island
H. W. Rowe & Associates*

*Our Lady of Angels Church, Brooklyn, N. Y.
Robert J. Reiley*





*Chapel at Westbury, Long Island
Office of John Russell Pope*

*Chapel entrance, First M. E. Church, German-
town, Pa. Sundt & Wenner; Walter H. Thomas*



*St. Vincent de Paul's, Bayonne, N. J.
Maginnis & Walsh*

*Church of the Heavenly Rest, New York City
Mayers, Murray & Phillip*





*Church of the Immaculate Conception,
Fall River, Mass. Maginnis & Walsh*

*Church of the Immaculate Conception,
Astoria, Long Island. Robert F. Reiley*



*Hellenic Eastern Orthodox Cathedral, New York
City. Kerr Rainsford; Tilden, Register &
Pepper*

*Church of the Blessed Sacrament,
Walpole, Mass. Matthew Sullivan*





*Holy Name of Jesus Church, East Orange, N. J.
Maginnis & Walsh*

*Carmelite Convent, Santa Clara, Calif.
Maginnis & Walsh*



*Church of the Transfiguration, Philadelphia, Pa.
Henry D. Dagitt & Sons*

*First Presbyterian Church, Greensboro, N. C.
Hobart Upjohn*





*Chapel of Hamilton College (1825),
Clinton, N. Y. Philip Hooker*

*Village Chapel, Pinehurst, N. C.
Hobart Upjohn*



*Storrs Church and Community House, Storrs,
Conn. Delbert K. Perry & Earl K. Bishop*

*Holy Name of Jesus Church, East Orange, N. J.
Maginnis & Walsh*





*First Church of Christ Scientist, Swarthmore, Pa.
Davis, Dunlap & Barney*

*Wilshire Boulevard Congregational Church,
Los Angeles, Calif. Allison & Allison*



*All Souls Unitarian Church, New York City
Hobart Upjohn; Otto F. Langmann, associate*

*Christian Science Church, Pleasantville, N. Y.
Oscar Valet*





*Chapel of St. Vincent's Home for Boys,
Brooklyn, N. Y. Henry J. McGill*

*St. Paul's Church, Yonkers, N. Y.
Cram & Ferguson*



*Holy Rosary Church, Houston, Texas
Maurice J. Sullivan*

*The Riverside Church, New York City
Henry C. Pelton; Allen & Collens*





*Epworth Euclid Church, Cleveland, Ohio
Bertram G. Goodhue; B. G. Goodhue
Associates; Walker & Weeks*

*St. Luke's Evangelical Lutheran Church,
New York City. Edward L. Tilton*



*Cloister to south transept, St. George's Chapel,
Newport, R. I. Cram & Ferguson*

*First Presbyterian Church, Wilmington, N. C.
Hobart Upjohn*





*West doorway, Princeton Chapel
Cram & Ferguson*

*South door (12th century) of Church,
Iffley, England*



*Choir, St. Paul's M. E. Church, Brooklyn, N. Y.
Sundt & Wenner; Walter H. Thomas*

*First Presbyterian Church, Kalamazoo, Mich.
Charles Z. Klauder*





*North door, First Presbyterian Church,
Passaic, N. J. Harry Leslie Walker*

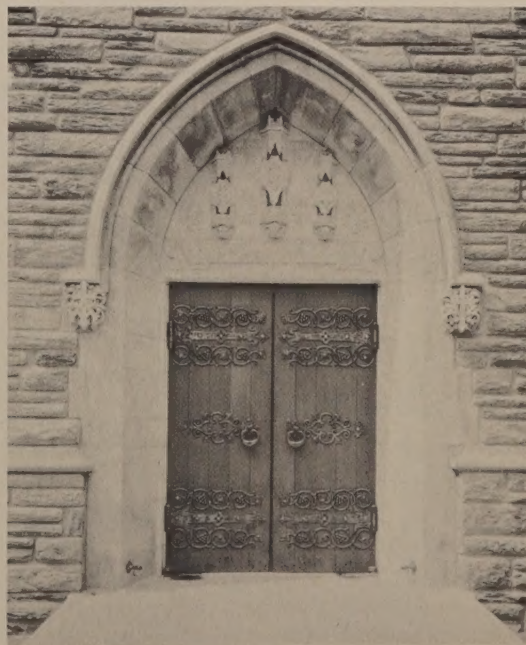


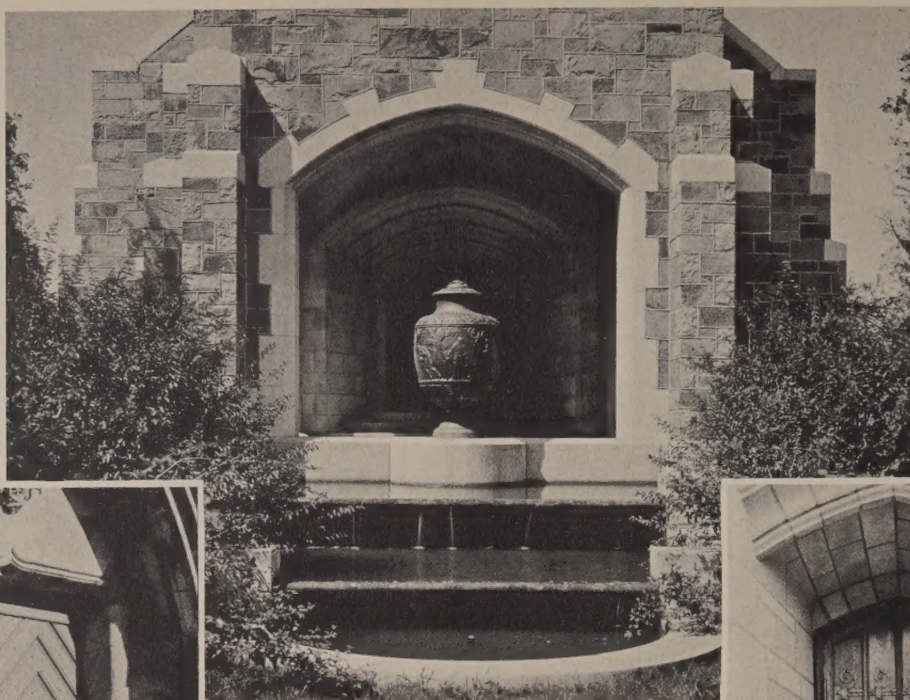
*Church of Our Lady of Sorrows,
South Orange, N. J. Maginnis & Walsh*



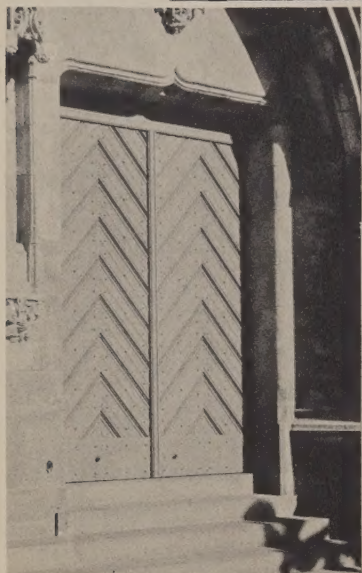
*Synod House, Cathedral of St. John the Divine,
New York City. Cram & Ferguson*

*Trinity Church, Moorestown, N. J.
Walter T. Karcher and Livingston Smith*

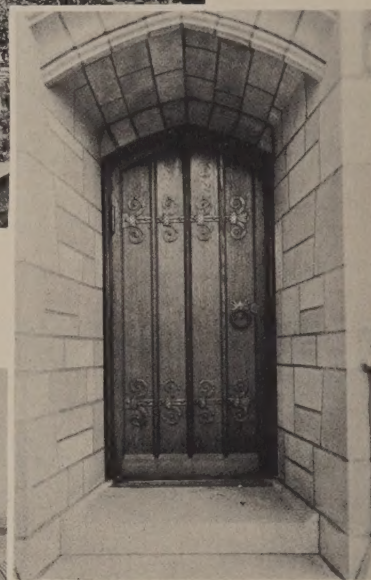




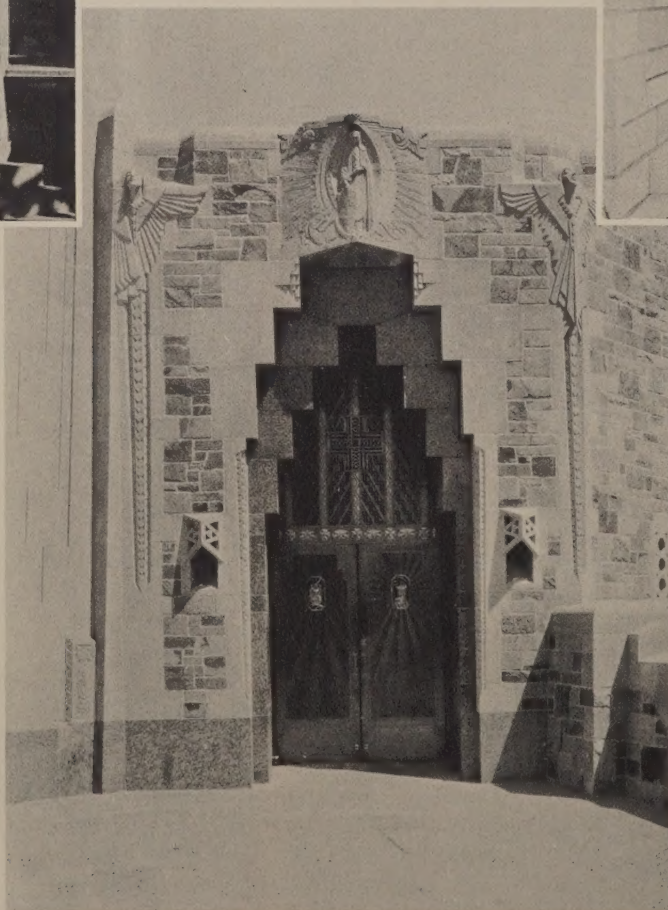
*Hippach Memorial Chapel, Green Ridge
Cemetery, Chicago
Arthur Woltersdorf*



*Central Methodist
Church,
Brooklyn, N. Y.
Halsey, McCormack
& Helmer, Inc.*



*Side entrance, Bryn
Mawr Presbyterian
Church,
Bryn Mawr, Pa.
Walter T. Karcher and
Livingston Smith*



*Shrine of the
Little Flower,*

*Royal Oak, Mich.
Henry J. McGill*



« ARCHITECTURE »

SOME OLD HOUSES, MORLAIX, FRANCE
From the etching by Philip H. Giddens